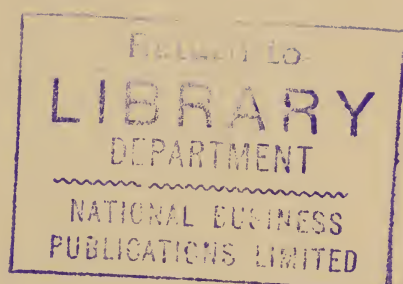
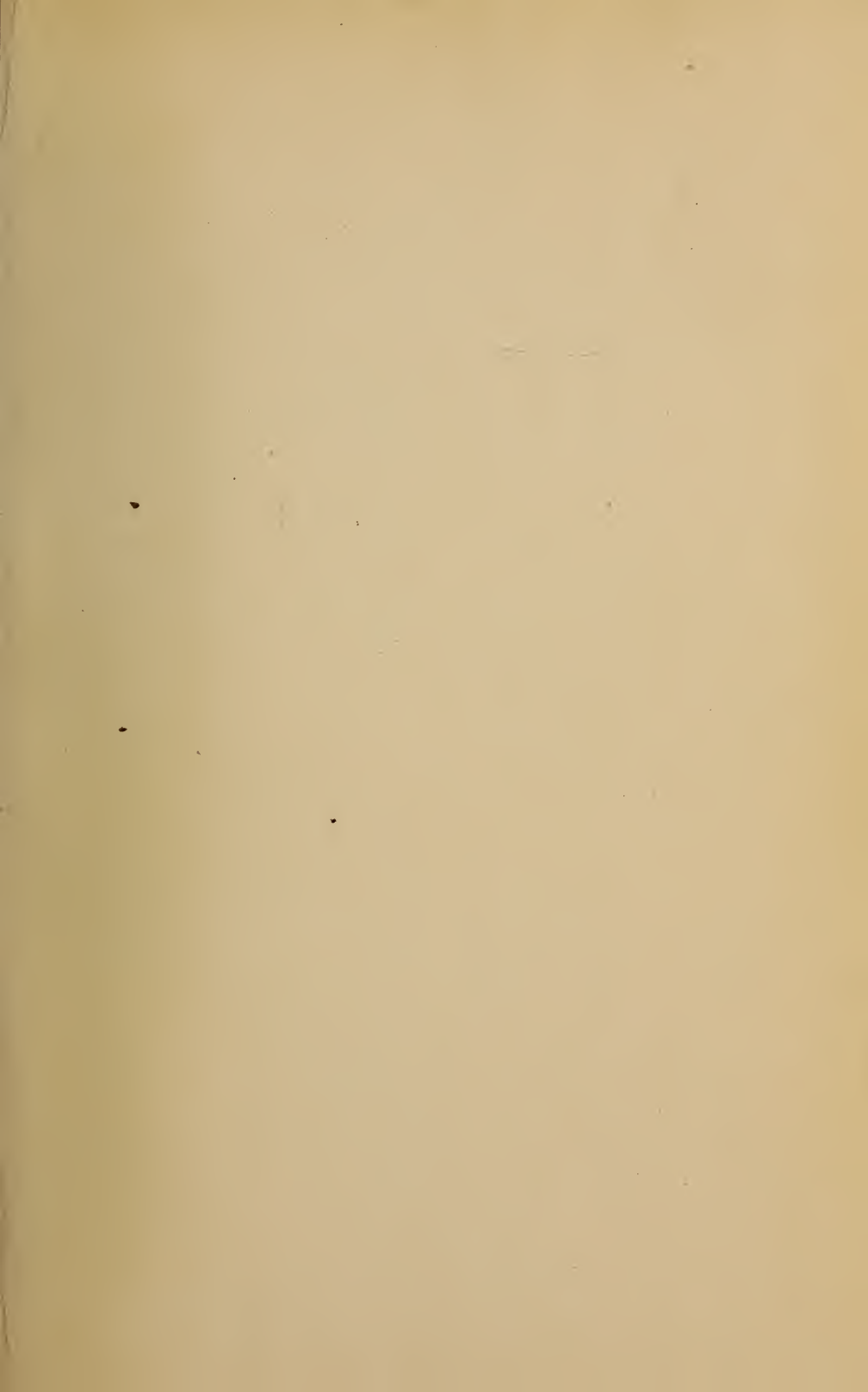
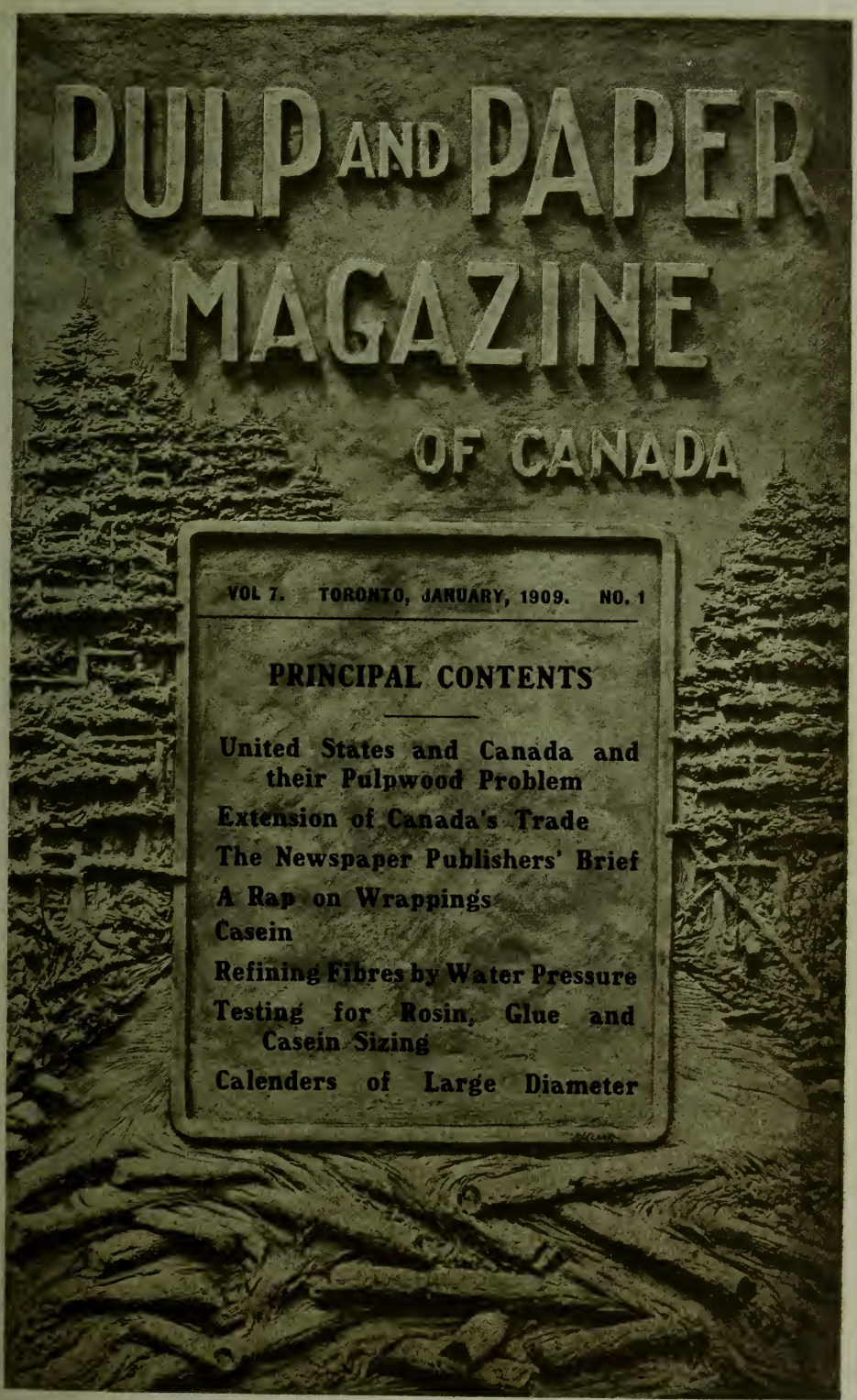


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PULP AND PAPER MAGAZINE OF CANADA

VOL 7. TORONTO, JANUARY, 1909. NO. 1

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United States and Canada and
their Pulpwood Problem

Extension of Canada's Trade

The Newspaper Publishers' Brief

A Rap on Wrappings

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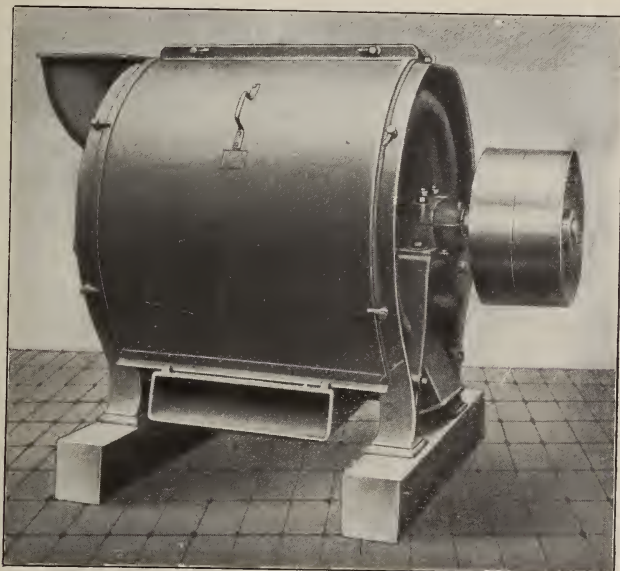
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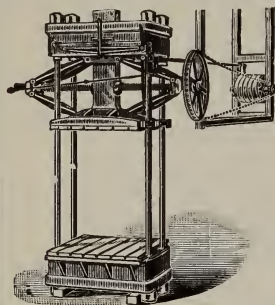
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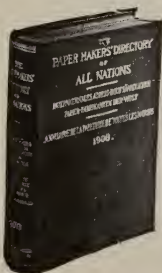
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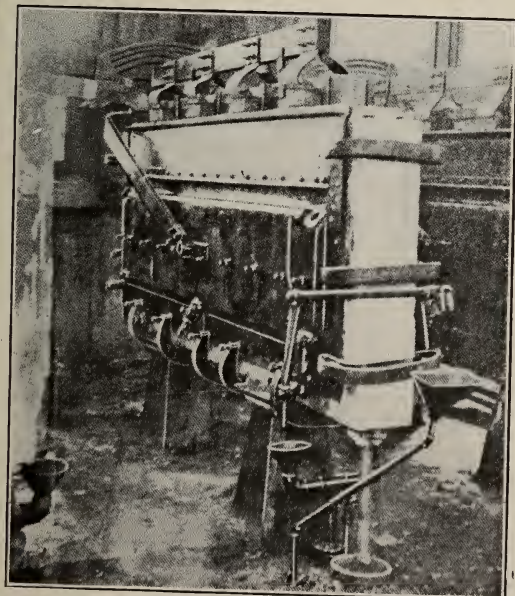
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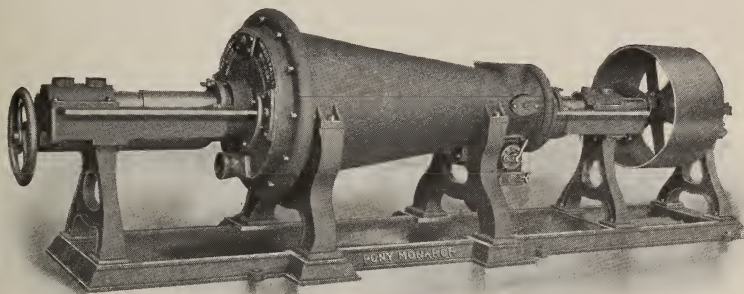
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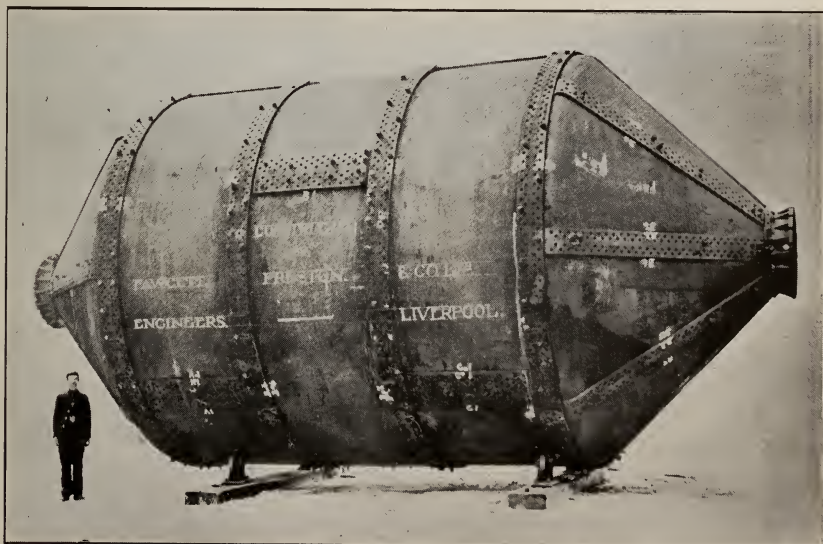
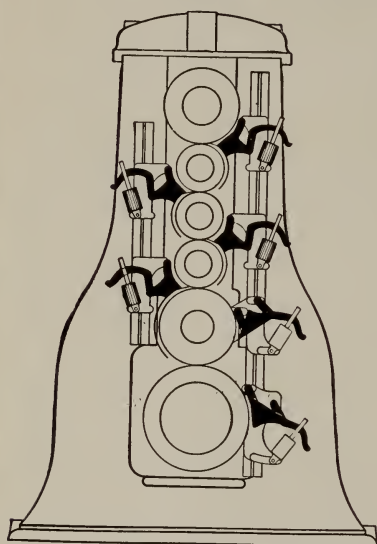


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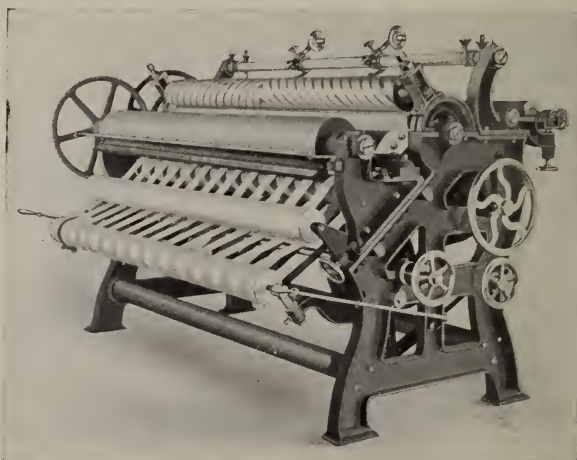


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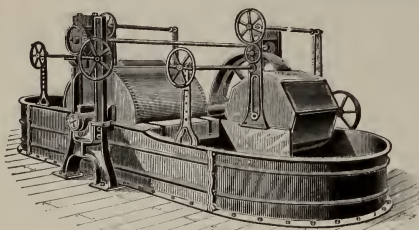
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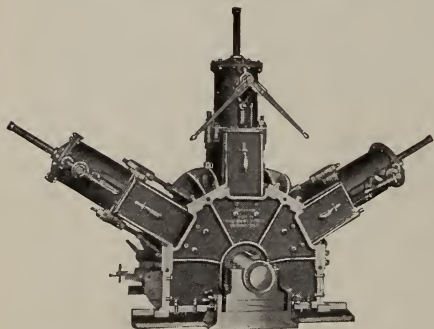
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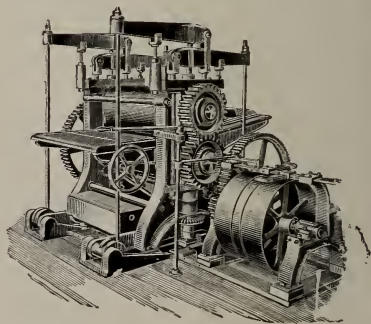
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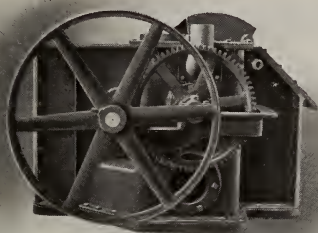
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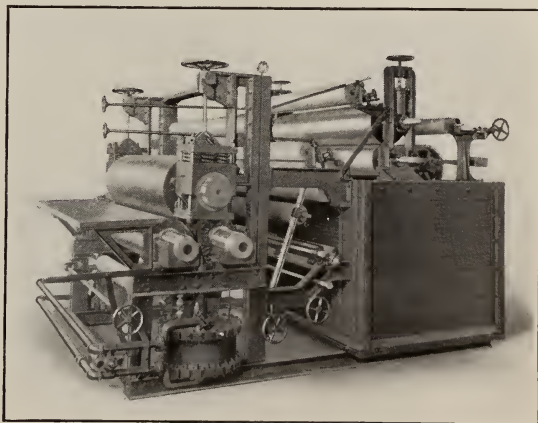


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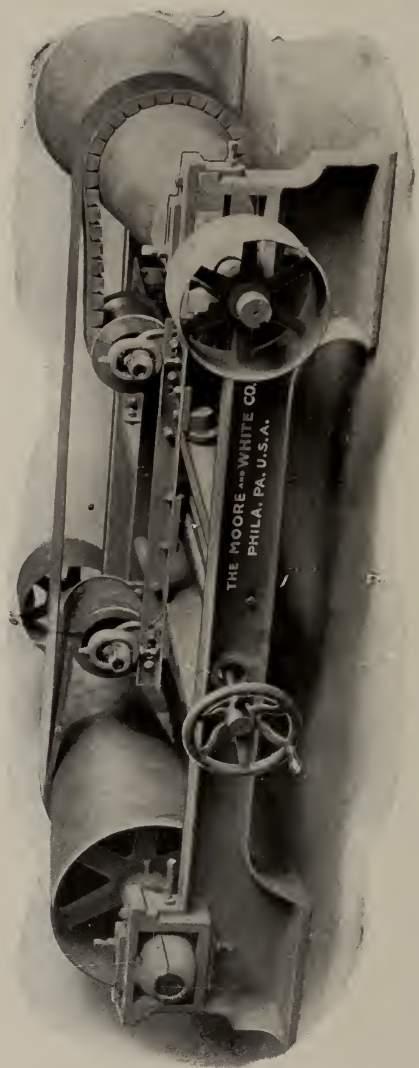


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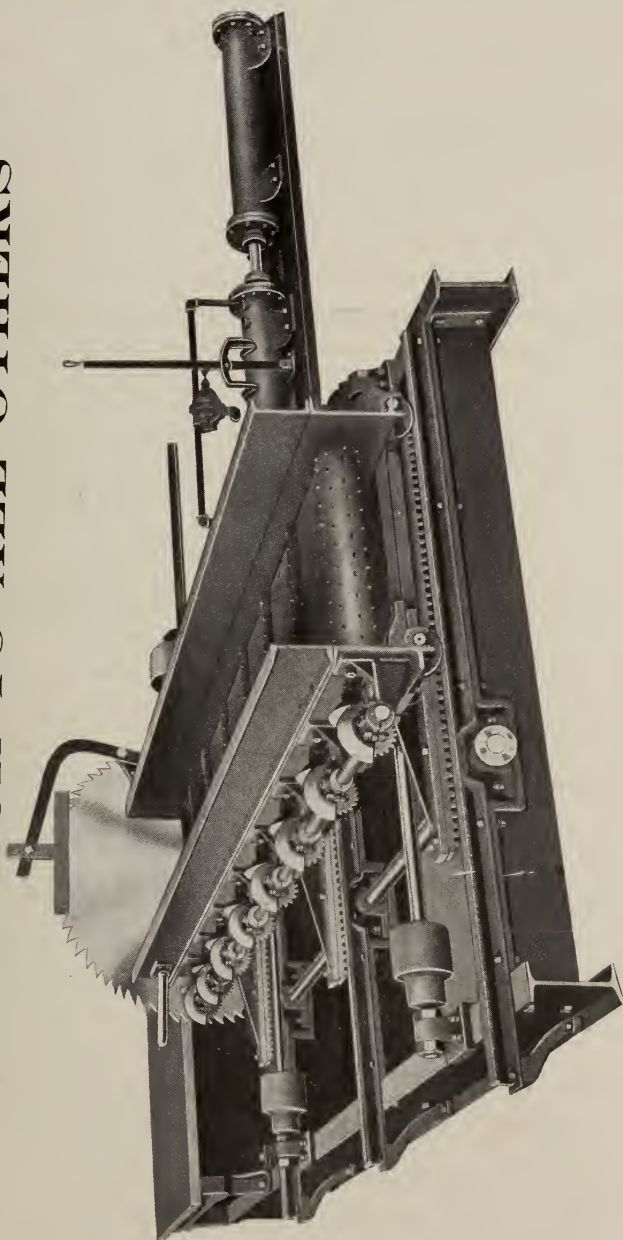
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Vol. 7.—No. 1.

TORONTO, JANUARY, 1909.

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Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

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UNITED STATES AND CANADA AND THEIR PULPWOOD PROBLEMS.

"The Pulp and Paper Magazine" has for a long time past advocated the policy either of placing restrictions on the shipment of pulpwood from Canada or of prohibiting its export altogether. This course was prompted through no manner of enmity towards the United States. It was, however, urged as a matter of necessity for self-preservation, the United States having largely used up its own resources and being now in the position of using up ours, without much tangible profit accruing to Canada. Frankly, we still believe this to be the only policy in sight which can save Canada's pulpwood resources. But it occurred to us that there was a bare possi-

bility of some plan being thought of whereby Canada might be saved the adoption of this somewhat drastic remedy and whereby the nations of the whole continent might work together for their common good. Knowing President Roosevelt's sympathy with all pertaining to the preservation of the forests and believing him to be broadminded enough to realize the Canadian standpoint on that question, we wrote to him as follows:—

Toronto.

Hon. Theodore Roosevelt,
White House,
Washington, D.C.

Hon. Sir;—

Now that the elections in Canada and the United States are over and the old administrations in both countries re-seated in office, the forestry problem, especially those features of it associated with the pulp, paper and woodworking industries, will, no doubt, receive early attention at the hands of the respective Governments.

Happily for us in Canada this question has been kept out of party politics, only occasional reference being made to it during the last campaign, and even then by no one of authority in either political party. The time, therefore, seems opportune for the unbiased consideration of a forestry policy applicable to the whole North American continent.

The people of the United States are under a deep debt of gratitude to Your Honor for having taken the lead in educating the present generation to a better appreciation of the value of your forests, and it has struck us that you, having taken so broad a view of the interests of your own nation, could take an equally broad view if you were to out-

line a policy for the conservation of the forests of both countries. Will you suggest a plan of dealing with the pulp and paper industries and the manufacture of wood products generally in such a way as to conserve the forests of both Canada and the United States and cause as little disturbance as possible to the industrial activities of each country in these important spheres?

You are no doubt aware that the tender point, from the Canadian side, is that this country, having now perhaps four-fifths of the forests of the continent suitable for the manufacture of pulp and paper, would not desire to see such a treaty inaugurated as would maintain these industries in the southern half of the continent at the expense of the forest reserves and water powers of Canada, because it would hasten the process of devastation which you deplore in your own case, and there would not be left even the consolation of an industry created in the interests of the passing generation. If you can suggest such a continental forestry policy as will bring the industrial interests of Canada and the United States into harmony and yet conserve and restore the forests of the whole continent, you will accomplish a master-stroke of statesmanship. Such is the high regard that Canadians have for you personally that we believe the mere proposal of a solution, even if it is not completely satisfactory, will go a long way to bring opposing interests in the pulp, paper and woodworking trades of the two countries into a frame of mind favorable to mutual concessions.

Very truly yours,
Biggar-Wilson, Limited.

We received a reply at once to the effect that the President would look carefully into the whole matter; and shortly afterwards a letter from Gifford Pinchot, Chief of the United States Forest Service, which reads as follows:—

December 12th, 1908.

Dear Sir:—

The President has handed me your very interesting letter of November 7th, and also the one of November 25th, with enclosed clipping. My time has been so completely occupied recently with preparations for and the sessions of the National Conservation Commission that I have been unable to give your suggestions concerning a forest policy, which should embrace both the United States and Canada, the careful consideration

which I wish to. As you know, a special session of Congress will probably be held early in the spring to revise the tariff. Before then I expect to study as thoroughly as I can the effect which the present tariff upon lumber coming from Canada has upon the forests of the United States, and the effects which might be expected were the duty removed. In this connection I shall be very glad indeed to consider the suggestions which you have been good enough to make.

Very truly yours,
(Signed) Gifford Pinchot,
Forester.

Subsequently it was announced by the President that a conference would be held looking to the conservation of the natural resources of all North America, and Canada and Mexico were invited to send delegates. The suggestion of "The Pulp and Paper Magazine" is to be carried out, as is evidenced by the following paragraph from the letter of invitation borne by Mr. Pinchot to His Excellency Lord Grey:—

"It is evident that natural resources are not limited by boundary lines which separate nations, and that the need for conservation of them upon this continent is as wide as the area upon which they exist. In view, therefore, of these considerations, and of close bonds of friendship and mutual aims which exist between Canada and the United States, I take especial pleasure in inviting you to designate representatives of the government of Canada to meet and consult with representatives of the States and other departments of this Government, and the national conservation commission, in the City of Washington, on February 8th, 1909. The purpose of the conference I have the honor to propose is to consider mutual interests involved in the conservation of natural resources, and in this great field to deliberate upon the practicability of preparing a general plan adapted to promote the welfare of the nations concerned."

Gifford Pinchot further elaborated this idea in the course of an admirable address before the Canadian Club at Ottawa. Dwelling on the present terrific waste of timber in the United States, he said that it was being cut three and a

half times as rapidly as it was being increased by natural growth; also that the preventible fire loss amounted to half a billion dollars yearly.

The Dominion Government, of course, has accepted the invitation to send representatives to the conference, which takes place next month. It is absolutely impossible for Canada to go on as she is doing to-day, shipping away the wherewithal to build up the United States paper industry, when she has only barely enough for her own future requirements. It is to be hoped that some plan will be arrived at whereby our own interests can be conserved, without doing harm to those of our neighbors.



*See 2nd
p. 82*

EXTENSION OF CANADA'S TRADE.



The Department of Trade and Commerce having invited manufacturers and others to make suggestions as to the best way of increasing Canadian trade with foreign countries, John J. Palmer, president of the Toronto Type Foundry Co., writes, pointing out that Canada is at a great disadvantage in doing business with Cuba, for instance, as the United States got Cuba several years ago to grant them a preference tariff of 25 per cent. Canadian paper and machinery products are thus barred from the Cuban market. He believes that if our Trade and Commerce Department took this matter up seriously with Cuba, Canada could be placed upon as favorable terms as the United States is. Cuba is a growing market right at our doors, and our Government should make a strenuous effort to open up Cuba to our manufacturers.

The Southern American people also are all anxious to do business with Canadian manufacturers, and it would be a good idea for our Department of Trade and Commerce to send a deputation of trained business men, together with a good diplomat, to arrange a reciprocity treaty with these countries. The South Americans would rather deal with Canada than with the United States, and Canada should take advantage of that preference to secure us advantages as against our neighbors across the border.

From Mexico to Paraguay there are over eighty millions of people, who are increasing in wealth at a rapid rate, and who could be made large consumers of our manufactured products if we had favorable treaties with them and favorable steamer service.

Mr. Palmer mentions that as manufacturers of printing machinery his company's export trade to South America the past three years has amounted to over a quarter million dollars, which only goes to show what large manufacturers could do under more favorable trading conditions, which the Dominion Government can probably procure.



THE NEWSPAPER PUBLISHERS' BRIEF.



John Norris, the leader of the American newspaper publishers, in their cry for a reduction or cutting off of the duties on pulp and paper, made some rather surprising statements. One was to the effect that paper could be made cheaper in the United States than in Canada. Basing the comparison on one

or two particular mills in the United States against certain mills in Canada, perhaps this statement is correct; but the manner of Mr. Norris' argument led his hearers to presume that his intention was to declare the general cost of production to be less in the United States than in Canada. This is certainly not the fact; and if it were, many of the publishers' other arguments for tariff reduction would have to fall to the ground. The cost of production in Canada for both pulp and paper has been extremely high during the past few months; but for the same reason that it has been in the United States—namely—low water, high priced pulpwood and other materials; heavy labor charges and so forth. But in this matter, Canada still possesses the advantages of nearer sources of supply and this, in these days of rapidly depleting forests, means a good deal.

Mr. Norris also accuses the international and some of the other manufacturers of devastating the forests; and in another place criticizes them for cutting only 25 per cent. of their material from their own lands. It seems to us that Mr. Norris suffers from an attempt to prove too much.



A RAP ON WRAPPINGS.

What is the explanation of the steady increase in the use of kraft brown papers for wrapping and other purposes? The word "Kraft" means strong, and true to the derivation of the term, Kraft papers are noted for their strength and toughness compared with wrapping papers heretofore in use. Withal they are noted for their toughness, and hence their good value in other service besides wrappings.

Considering how rapidly kraft papers are making their way into favor with

the consumer is it not time some of our manufacturers re-examined the principle on which they produce this class of paper? Some go upon the notion that if they turn out a paper that has the weight and the appearance of strength it does not matter at all whether the virtue of strength and service is in the product. Some papers which have the apparent thickness of box board and strength of sheet iron, prove as frail and brittle as the dead leaves of autumn. This is a pitiful waste of raw material, and will no more advance the reputation of the manufacturer than the production of shoddy cloth under the name of pure wool goods. The best service to the consumer is the best policy, in the long run for the manufacturer, and the merchant who once handles the light, strong papers of the kraft character will seldom afterwards be deceived with the idea that the only thing required in a wrapping paper is bulk or weight. If the Canadian manufacturer engaged on this class of paper will study this question out afresh he will come to the conclusion that the practice of the past must be reversed if he is to hold his own and reflect credit on the reputation of Canadian mills. It is of no use to think that any old made-over machinery will do for kraft. This is now recognized by some of our manufacturers who are entering into this business, and we believe their efforts to build up a native real kraft industry will be attended with success.



CASEIN.

One of the most interesting features of the recent hearing before the Ways and Means Committee in Washington on the revision of the tariff was the request of the coated paper men to have casein

placed on the free list. The chief speaker to support this demand represented three manufacturing companies having an aggregate capital of \$20,000,000, and spoke the views also of many others. One of these former companies, S. D. Warren & Company, of Boston, Mass., and Yarmouth, Maine, consumes annually 1,400,000 lbs. of casein, of which only 700,000 lbs. is of domestic origin. At present the paper mills have to pay an import duty of 20 per cent. ad valorem, though it is interesting to note that according to a recent court decision, this is really contrary to law, on the ground that casein is actually lactarene, which is on the free list. The Casein Company of America practically controls the market for casein, and holds patents on it, though it is a question whether the material is one which can be rightly patentable. The trouble is that this company cannot begin to supply the requirements of the paper manufacturers; and they are obliged to import it from abroad, chiefly from Argentina, paying the above named heavy duty.

The question of casein manufacture is one in which Canadian paper manufacturers are also interested, as they consume of it during the year between 200 and 300 tons. With the enormous supplies of raw material, skim milk, existing in this country, it would appear to be a good proposition to start its manufacture here. At present it is a by-product in dairy operations, mainly used for feeding stock. Large quantities, however, are undoubtedly thrown away and wasted. The Canadian customs authorities at present class it as glue, paying an import duty of $27\frac{1}{2}$ per cent.



—There are several side-lines in the pulp and paper industry which might be

turned to advantage by Canadian manufacturers. We refer to such lines of goods as novelty papers, fancy tissues for lining of gift packages, and other purposes. Many of these and similar products are to-day imported from foreign countries, and yet might quite easily be made at home with profit to all concerned. Side lines made of wood pulp are also a somewhat neglected opportunity. We recently heard of school blackboards made of this material. Throw-away dishes for camping or picnics are another suggestion which occurs to the mind. Many manufacturers in this country can, no doubt, add to the list on reflection.



SOCIETY OF CELLSTUFF AND PAPER CHEMISTS.

At the meeting held recently in Berlin, Germany, of the Society of Cellstuff and Paper Chemists, the annual report showed a satisfactory growth in membership. It was stated that only two papers had been received for the prize competition, one of which dealt with the subject of "Rules for the Purchase and Testing of Filling Substances"; while the other took up the question: "How does it occur that paper sized with rosin size and free sulphuric acid in the course of time occasionally loses the strength of its sizing?" Under the circumstances, no prize was awarded.



—The December number of the Canadian Forestry Journal is to hand and, as usual, full of good things. The frontispiece shows a fine picture of the late Sir Henri Joly de Lotbiniere whose lamented death a few weeks ago was such a loss to the cause of forestry. There is an interesting discussion of forestry problems on the Eastern Slope of the Rockies by H. R. MacMillan, as well as many other articles, several of them illustrated

PULP AND PAPER NEWS

The E. B. Eddy Co. have installed smoke-consuming devices at its factory, which are working very efficiently.

* * *

The Ontario Press, Limited, has been incorporated with a capital stock of \$40,000 to carry on a printing, publishing, lithographing and stationery business.

* * *

A large number of men in J. R. Booth's pulp-wood camps at Madawaska have been paid off lately, owing to the suspension of operations at the Chaudiere.

* * *

In the action of F. Onderdirk and C. L. Snyder against the Bayless Pulp and Paper Co., involving valuable timber rights, and referred to in last issue, an appeal against the recent decision has been granted.

* * *

The Syracuse Mining and Development Co., a corporation incorporated under New York State laws and recently licensed under Ontario charter to do business in that Province, is authorized to buy and cut lumber, manufacture pulp, etc.

* * *

Chas. Barber & Sons, Meaford, Ont., turbine manufacturers, will this year pay special attention to this class of machinery for pulp mills. The firm was established in 1867, and have always given exclusive attention to the making of turbines, in which they have an enviable reputation.

* * *

George Schumaker has erected a laboratory in Vancouver in order to show how stumps and other waste wood may be utilized in the manufacture of lamp black, paper and other wood products. If his process proves to be successful it will be an important means of making profitable use of what is at present a source of expense.

* * *

Mr. Justice Magee has given judgment for \$4,000 in favor of the National Stationery Co., Toronto, against the British America Insurance Co. and

the Traders' Insurance Co. in an action brought to recover an amount alleged to be due on a policy covering the stock in the company's premises on Colborne Street. The plaintiffs are, however, ordered to pay the costs. The first claim was for \$10,039, but it was reduced to \$8,231.81. A number of other firemen were called to testify as to the rate at which paper piled on shelves would burn



In the elections for the Toronto Board of Trade W. J. Gage, president of the W. J. Gage & Company, Limited, wholesale stationers and publishers, was re-elected vice-president, and John F. Ellis, managing director of Barber & Ellis, paper and envelope manufacturers, etc., treasurer.



PAPER AS A GAS MANTLE MATERIAL.

A species of paper has been invented by Professor Pierucci, of the University of Pisa, composed approximately of 50 per cent. of ground gas retort graphite and 50 per cent. of cellulose (paper pulp). Among the uses to which it may be applied are the making of filaments for electric lamps, resistances in electrical theostats, condensers, and microphones, for protecting photographic dry plates and for filtering organic fluids, in which case the paper acts both as a filter and as an ozonizing disinfectant and sterilizer.



—The Dilts Machine Works, Fulton, N.Y., has made arrangements with the Laurie Engine and Machine Co., Montreal, whereby they will manufacture for Canada the former company's pulp grinders and wet machines.

—J. H. McNairn, who operates a wax paper factory in Toronto, was heavily interested in the Dansville Paper Mills, Dansville, N.Y., which were burned down on the 16th ult. at a loss of \$100,000.

NEWS OF THE MILLS

The Montrose Paper Co., Thorold, Ont., last month closed down for a week.

* * *

The Laurentide Paper Co. reports its mills at Windsor Mills, Que., to be quite busy, though the water is low.

* * *

The Jas. MacLaren Co., Buckingham, Que., have been favored with good water power in the Lievre River this season, and have been able to turn out a large quantity of pulp.

* * *

J. S. Hughes has leased the mill at Hartville, Hants County, N.S., and will make paper, board, etc., under the name of the Markland Paper Company, Limited. The company will be organized in a short time.

* * *

The West Coast Lumber and Pulp Co., composed of men in Syracuse and Central New York, has been organized with a capital of \$150,000 to build mills and produce lumber and pulp in Newfoundland. They will start operations at once.

* * *

The Canadian Pacific Pulp Co.'s mills at Swanson Bay, B.C., are making good progress towards construction, and are expected to be ready for operations by May next. Manufacturing will at first be confined to pulp, but paper machines will be added as soon as possible.

* * *

The Finance Committee of St. Catharines city council was negotiating the sale of the old J. M. Ross Co.'s factory in that city to the Manson Manufacturing Co., who made pulp screens and other machinery at Thorold, but at last reports no agreement had been reached.

* * *

The project to erect a large pulp mill at a cost of \$350,000 at Powell River, B.C., is taking more definite shape, under the superintendence of R. N. Cal-

kins, now of Anacortes, Wash. Negotiations are already under way for the machinery, material, land, timber, etc. A turpentine extracting plant will form a part of the equipment.

* * *

The Macleod Pulp Co., Limited, which acquired the old pulp and paper mills on the Mersey, near Liverpool, N.S., a few months ago, have made considerable improvements and extensions on the property, and will do so to a still further extent as soon as the conditions warrant. John R. Macleod is president and Frank Stanfield, of Truro, vice-president.

* * *

During part of the past month the Booth and Eddy plants had to depend altogether on steam or electricity as a result of anchor ice entirely blocking the flow of water in the Chaudiere. In this connection it is interesting to note that arrangements are being made for the construction of a dam at the foot of Lake Temiskaming in order to store up 27,878,000,000 cubic feet of water in the dry season, thus maintaining a sufficient flow for power purposes at all times.

* * *

F. H. Clergue, who is interested in the recent deal resulting in the transfer of the stock of the Lake Superior Corporation, states that it is the intention of the new management to spend considerable money in improvements and extensions of the plant, resulting in greater activity all along the line. It is said the sum of \$5,000,000 will be expended in local industries and in the extension of the Algoma Central Railway next spring.

* * *

Greely Kolts, 313 Cordova Street, Vancouver, has just organized a company under the name of the Western Canada Wood Pulp and Paper Company, Limited, for which incorporation papers are expected shortly. It will acquire the entire rights of the Quatsino Pulp &

Power Company on Vancouver Island, consisting of 55,659 acres of pulp limits on which it is proposed to erect a three machine mill and a mechanical and chemical pulp plant.

* * *

Sealed tenders were invited by the liquidators, J. J. Gibson and T. W. Horn, at the office of the Title and Trust Co., Toronto, up to the 26th ult., for the purchase of the factory and plant of the estate of the Menzie Wall Paper Co., Limited, situate in New Toronto, which are being operated under a fifteen years' lease by the Reg. N. Boxer Co. at an annual rental of \$16,500. No sale, however, was made at that time, though we are informed negotiations are still in progress.

* * *

The new pulp mill being erected at Thorold, Ont., by H. B. Eshelman and others, of Niagara Falls, N.Y., will have to get along without assistance from the town. The law requires that, in case other industries of a like nature are already established in a municipality, the consent of the proprietors of the established industries must be obtained before the municipality may assist the new enterprise in any way. The firms running the two pulp mills already established at Thorold refused their consent to the proposed assistance to the new mill, which was to be free electric lights for a term of years, reduced assessment, and free water hydrants for fire protection. The company has bought a considerable piece of land inside the corporation, and the concrete building is partly erected. The mill will, therefore, be assured to the town, notwithstanding the lack of assistance.

* * *

The New Brunswick Pulp & Paper Company's mill at Millerton, N.B., is now complete and the machinery in place. The president is Jas. Beveridge, who is well-known among pulp and paper men, and the secretary-treasurer is J. Douglas Volckman, who was for eleven years with the Ely Paper Mills at Cardiff. The management expect to have the pro-

duct on the market by the end of the present month. This mill will devote exclusive attention to the production of Kraft Brown. There is at present one machine especially adapted for this purpose capable of turning out 50 tons per week, but there is sufficient space for another, and this will be installed as soon as conditions warrant. The mill has good transportation facilities, in fact it costs no more to ship stuff to London, Liverpool, or Bristol than it does to Montreal, so that exportation would be quite possible if the demand were not sufficient at home in Canada. It is altogether likely, however, that the domestic demand for Kraft Brown paper in Canada will be sufficient to look after all that is made in the near future, for the market is very good. It is not generally recognized that the difficulty in manufacturing really good kraft paper equal to that which comes from Sweden consists largely in the milling. A good deal of so-called kraft brown has not been sufficiently "milled" to make the fibres pliable, and as a consequence the paper breaks in wrapping. Mr. Beveridge's mill is fitted up with special machines for the proper milling of this product. Mr. Volckman has been on a business trip to Toronto, and arrangements are being made to have a permanent representative in that city. A warehouse will also be opened in Montreal.



—The Northern Engineering Works, Detroit, Mich., have just issued their booklet No. 93 as a reminder of what they make in the line of foundry machinery. Those desiring full particulars of any particular class should send for a special catalogue.

—The seventh annual banquet of the Paper Association of New York City was held on the 16th ult., Geo. F. Perkins, Jr., president, in the chair. Among those present were W. F. McQuillen, president of the National Paper Trade Association, and A. C. Hastings, president of the American Paper and Pulp Association.

TRANSPARENT PAPER.

Whether a paper shall be opaque or transparent depends less on the composition of the pulp than upon the way in which it is ground in the hollander. To get a transparent paper the fibre must be ground as short and greasy as possible, e.g., for imitation parchment and for copying papers. Although at the present time many kinds of paper (letter papers, for example) are made with a glassy transparency, they are on the whole a mistake, for the writing is often made illegible, if both sides of the paper is used, by both writings being visible at the same time. Such letter-papers are used mostly for foreign correspondence, as the postage rates are often much higher than those charged for inland letters; but it will be found that postage is saved if a more opaque but still thin paper is used that can be written on both sides, so that one sheet does the work of two. There is, of course, more weight of ink per sheet if both sides are used, but this is trifling compared with the weight of additional paper. Printings, too, must be opaque for good work, to prevent the letters on the side being obscured by those on the other side.

A good method of estimating the degree of transparency of a paper sufficiently well is to lay the paper over a sheet printed with fairly heavy type, and judge by the amount of ease or the reverse with which the letters can be seen. This test is, however, not quantitative. It depends on the size and blackness of the printing for one thing, and too much on the judgment of the observer—the personal equation, that is, for another. A very black print makes a better show than a greyish print through the same overlaid sheet, for instance.

The following test will be found to give accurate and reliable results:—Gum on to a sheet of white glass a few deep black and perfectly opaque letters cut out of thin cardboard. It is best to use both capitals and the corresponding lower case letters. The capitals should be about an inch high. The paper to be

tested is laid upon the test-glass in several thicknesses, and a second sheet of white glass is laid over all. The whole thing is then held up so as to be seen by transmitted light, and the transparency of the paper is judged by the number of sheets of it through which the letters can be seen. The best source of light is average diffused daylight, and the test should be done out of doors, so as to avoid as far as possible light reaching the test by reflection in unexpected directions. No artificial light is sufficiently trustworthy. Some are too strong, and some are too weak. A standard light might, of course, be used if of constant and suitable strength, but it would have to be employed indoors, and the reflection difficulty above mentioned would at once present itself. For comparative tests a uniform light is essential, and as far as possible no light should enter the observer's eye except that coming through the test. It would be a good plan to use the test as a sort of object-glass to a telescopic tube. If the open end of the tube were put close to the eye the difficulty of extra illumination would be prevented. In the telescope itself, of course, the function of the tube is to exclude all that except that passing through the object-glass. In comparative tests the eye should be always at the same distance from the test-glass, for sufficiently obvious reasons. The following table gives the result of some experiments. The number in the fourth column shows how many sheets of paper under examination were needed to conceal the black letters:—

Kind of paper.	Weight of one sheet.		Thickness of one sheet in mm.	No. of sheets.	Ash per cent.
	Grammes per sq. meter.	of one sheet.			
Fine printing	89	0.08	7	19.85	
Soft	75	0.17	10	0.50	
Thin	50	0.05	9	22.20	
Art	119	0.11	6	26.65	
Chromo	153	0.12	5	.....
Map	215	0.18	4	17.60	
Drawing	180	0.23	2	1.50	
Drawing	151	0.19	6	1.25	
Note	127	0.10	5	18.25	
Note	110	0.11	5	20.15	

The greatest number of sheets as yet observed as being required to hide the black letters is sixteen. The closeness of the paper has not much to do with the transparency. A sheet weighing 50 or 60 grammes per square metre may cover better than one weighing 120 grammes. Dyeing and sizing have not so much influence as might be expected, but heavy loading with opaque minerals, such as china clay or barytes, naturally diminishes the transparency considerably.

It is hoped that the method here given of testing the transparency of a paper may be found of service and lead to the formation of some standard scale of transparency to which paper-makers makers could work, and which paper-buyers would understand and use in giving their orders.



BLOTTING PAPER FROM TURF.

The demand for new material for paper making is so great and so constantly increasing that the fibre obtained from peat mosses, although unsuitable for the majority of papers, is continually being more and more used for special classes. Many of the failures which had hitherto put a stop to attempts to employ this fibre in paper making were due simply to trying to do too much with it. For certain kinds of paper it renders excellent service, but enthusiasts have engaged in the hopeless task of making superior papers from it with but small admixtures of better fibre, or even from peat fibre alone.

Peat fibre is very old, and has undergone putrefactive processes, which clearly demonstrate that the sooner it is used for paper making the better. The defects of peat fibre from the paper-makers' point of view are its brittleness and the impossibility of bleaching it. The first fault is largely responsible for the second, for the bleach process tends to tender the fibre still more. Even for packing papers and other coarse sorts peat cannot compete as a raw material

with straw. When we seek for a rational field for the fibre we find it in blotting paper.

Blotting paper is not expected to be strong, but it must be highly absorbent, and peat-made paper is pre-eminently absorbent. Again, the color is no objection when the peat is used in this way. Blotting papers made from better class fibres and then artificially dyed in shades extremely similar to those naturally possessed by peat paper are common in the market. White blotting paper cannot, of course, be made from peat.

As regards the manufacture of brown blotting paper from peat some important observations have to be made. The old part of the peat, i.e., that dug from a depth below the surface will not do alone. The fibre is too fragile even for blotting paper, but there is no need to go beyond the moss to find stronger fibre, which can be amalgamated with the other in suitable proportions. The top of every peat moss presents living plants, the descendants of the dead plants below them, and fibre from these living plants will be found well able to impart the necessary strength, and will either make the resulting paper slightly lighter in shade or of the same color as if it had not been used. The fibre from these living plants can, however, be bleached if required without any material diminution in their strength. If they have been bleached they, of course, have a marked effect in bringing down the color of the finished paper.

It is essential, moreover, to save money by utilizing the washings from the fibre. These are highly carbonaceous, and if allowed to subside in settling tanks can be used with profit in the preparation of cheap fuels, especially briquettes. The supernatant water having been run off from the sediment the latter is filtered in a filter press, moulded and dried. It often pays to impregnate the dried briquettes with some cheap inflammable substance. In certain cases the sale of these briquettes is a valuable help towards securing a good profit from the manufacture of peat blottings.

MEASURING OF COLOR.

The absence of a reliable instrument for actually measuring color led Arthur D. Little, the well-known chemical expert, of Boston, to urge Frederic C. Ives to turn his experience in the invention of special optical instruments to the development of a device for measuring color. After nearly two years of experiment Mr. Ives has produced an instrument which meets every requirement of the technical experts.

The instrument known as the colorimeter is universal in its scope, convenient in its use, and practically available in the arts and industries. Its simplicity is as marvellous as its ingenuity. By its means the color of objects, either transparent or opaque, can be measured by the proportions of the primary colors red, green and blue, which are necessary to produce the given color. At one end of the rectangular box, some 18 inches long, are three apertures covered by colored screens, of respectively red, green and blue glass. Each of these apertures is provided with an adjustable shutter, the amount of opening of which can be read upon a corresponding scale. The resulting color, say purple, for instance, may therefore be expressed as red 50, green 5, blue 80, or simply as 50, 5, 80, if the colors are all simply given in the same order.

At the other end of the box is an eye piece, and at mid-length a lens in connection with a wedge prism, so located that the light from the color screens passes through only one-half of the lens. At this point is also located a mixing wheel consisting of a dozen convex prisms so arranged around its rim that as it is revolved they successively pass through the line of vision. When at rest either red, green, or blue will appear, according to the position of the lens. But when the wheel is revolved at the proper rate of speed, the independent colors become so perfectly mixed, because of the persistence of vision, that the result is a single even color. The character of this

color may be changed through all the hues of the rainbow by varying the openings of the shutters for the three primary colors. Obviously, record may be kept of each opening as read on the scale, and hence the color can be reproduced at any time by re-setting to the same scale readings.

Through the other half of the lens previously mentioned can be seen the color which is to be matched. So it becomes merely a matter of adjusting the proportions of the primary colors thrown on the other half of the lens until both halves are of the same colors. Ingenious means are provided for overcoming the effect of the difference in natural lighting, as it is affected by weather, location of instrument, etc.

The first of these instruments was installed some months ago at the Arthur D. Little Laboratory, Boston, where its practical usefulness has been displayed in the everyday work of a large industrial laboratory. Another is now in use at the Bureau of Standards, Washington.

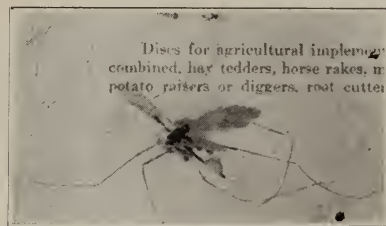
So simple in construction and operation is the colorimeter that it must prove indispensable to all who have to do with colors, such as chemists, dyers, paper-makers, manufacturers of paints, printing inks, etc. By means of its records exact instructions regarding color may be transmitted without the medium of a color sample: standards may be established which will not be affected by time or exposure; even the color blind may use it, and the degree of such blindness be exactly determined.



—The result of the tenders for printing paper required by the Ontario Government for a term of three years was the award of contracts as follows:—Statute paper, to Kinleith Paper Company, St. Catharines, Ont.; cover paper, Canada Paper Company, Toronto; coated paper, Ritchie & Ramsay, Mimico. The prices have not been given out, but are said to be lower than formerly.

A NOT INFREQUENT FLAW.

The accompanying illustration reproduces what the editor found in a Government Blue Book. The insect had been



imbedded in the texture of the paper during the process of manufacture. Blue-books do not always contain such interesting objects.



PAPIER MACHE.

The material papier mache is plastic, easily handled and can be readily molded into various objects. Large articles can be formed into an approximate shape by means of a light framework of suitable materials. The object is then formed by plastering liberally with the papier mache and moulding into shape: Papier mache is made from old paper and the like by making it into a pulp with milk of lime or lime water and a little gum dextrin, starch or glue size. This pulp is then pressed into form, coated with linseed oil, baked at a high temperature, and finally varnished. The pulp is sometimes mixed with kaolin, chalk, etc.; and other kinds are made of a paste pulp and recently slaked lime. The papier mache trays, boxes, etc., are prepared by pasting or gluing sheets of paper together and submitting them to powerful pressure, by which the composition acquires, when dry, the hardness of board. Such articles are afterwards japanned, and are then perfectly waterproof. Another kind of papier mache is prepared by stirring either wheat, oat, rye, barley or bean flour into a thick paste with linseed oil varnish. The mass is then

pressed into molds or rolled out in plates and dried in the usual manner. The articles when dry are saturated with linseed oil, then treated with colored lacquers and finally polished.



LOSS OF PULP IN MAKING PAPER.

The "Papier Zeitung" suggests that when sulphite wood pulp is beaten together with rags a large proportion of the weaker wood fibre becomes so absolutely reduced by the beating operation that it passes away in the back-waters in a gelatinous form, and cannot even be recovered by the most efficient kind of pulp-economiser. It quotes a case in which a paper was supposed to contain 50 per cent. of wood pulp, and 50 per cent. of mixed rags; but the most careful microscopic analysis showed barely one-half of the supposed quantity of wood fibres. A similar result, but still more striking, was found in the case of a cigarette paper, stated to contain 65 per cent. of sulphite and 35 per cent. of linen and hemp, but which only showed 10-15 per cent. of wood fibre under the microscope. Wood fibre is very easily beaten down into fine gelatinous shreds, especially if it is subjected to the very prolonged and severe beating necessary to reduce strong linen rags to a condition suitable for such papers as cigarette tissues.

A correspondent suggests what is probably the correct solution of this puzzle, namely that the wood fibre is not lost nor dissolved in the back-waters but that it is still present in the paper in the form of fine shreds not readily recognized as wood fibre in the microscopic examination. The correct way of preparing such mixtures is either to beat the two kinds of fibre separately and mix them in a refiner or in the chest, or else, if the proportion of wood pulp be not too great, to add the wood pulp to the beater after the beating of the rag fibre is nearly completed.

PAPER FOR SAMPLE BAGS.

The "Papier Zeitung" contains a discussion by several practical men on the best way of preparing paper for making sample bags. The paper must be strong and tough, but must also be soft and pliable, it should not make a rattling noise when folded and should take the gum easily.

One writer prescribes strong, coarse rags and bagging, thoroughly cleansed from grit; the fibrous waste from the rag clusters and willows may be boiled for making these papers, also low-grade sulphite wood pulps obtained by grinding the knots, separated from the good pulps, in the kollergang. Any loading which may be added must be well strained before going into the beaters, because any lumps will cause holes in the paper, and the bags will be unsuitable for powders. On the machine the pressure of the couch rolls and wet presses must be graduated; the heat of the drying cylinders also must be graduated very carefully; the dry paper should pass over a cooling drum and be damped with sprays before reeling for subsequent calendering.

Another writer states that the best raw material for making these papers consists of shavings from light colored rope casings, glazed sealings and other papers of the strong wrapping class. These should be steamed in presence of water only until softened, and then broken-in, not in the kollergang but in a kneading machine. Sixty per cent. of these shavings may be mixed with 30 per cent. of a discolored quality of a soft sulphite pulp and 10 per cent. of machine broke of the same making. The stuff should be beaten "free" rather than "wet" in order to preserve the length of the fibre. The sizing should be from three-quarters to full sizing. A small proportion of talc is advantageous as a loading. This paper is very liable to break during drying unless the heat of the first few cylinders be very carefully moderated.

A third writer considers that the kollergang is indispensable for obtaining paper of the desired quality, and that all

the materials, including even the sulphite pulp, should be treated in the kollergang before beating; the kneading machine has not the desired effect on the fibres.



DISADVANTAGES OF PUMPING PULP.

Up to within ten years ago pulp was always conveyed to the hollanders (even though wet) in relatively solid form. Since that time various American and Scandinavian concerns have adopted the system of pumps for conveying cellulose and ground wood. This method, it is asserted, by a correspondent of "Papier Zeitung," has proved unprofitable, pumping being the most expensive form of conveying. As pulp when pumped does not usually contain more than 3 per cent. of dry substance, the balance of water has to be got rid of by the washing appliances of the hollanders, a heavy loss being caused. This is further increased by a loss of 5 per cent. in the pumping itself. As a result of these conditions in some American mills pumps for pulp have been dropped. What is regarded as still more important is that in new installations they are being omitted.



LAKE SUPERIOR CORPORATION.

Robert Fleming, of Edinburgh and London, one of the best known and most successful financial men in Great Britain is at the head of a syndicate which has taken over large interests in the Lake Superior Corporation, which carries on pulp mills, steel and rail factories, and other large industries at Sault Ste. Marie, Ontario and Michigan.

The transfer is probably a most important and far-reaching one for the Province of Ontario, involving the further expansion and development of all the allied manufacturing concerns, the building of large modern blast furnaces,

the probable immediate extension of the Algoma Central Railway to connect with the National Transcontinental route, as well as the relieving of the Government of Ontario of the remaining \$1,000,000 of the Provincial loan guarantee advanced during the crisis of 1904. It is a further proof of the increasing interest taken in Canada by British investors on a large scale. Associated with Mr. Fleming is F. S. Pearson, D.Sc., the well-known engineer of London and New York, who will have general direction of the undertaking. The question of organization is still being considered, but it is understood that a large amount of money is to be put into the property without delay. The present capitalization of the corporation is \$40,000,000 in stock, \$10,000,000 in first mortgage bonds and \$30,000,000 in income bonds. On the new basis, means will be adopted for the provision of such additional funds as may be required.



IMPRESSED AND COLORED PAPER.

Farbwerks vormals Meister Lucius and Bruning, of Hoechst a Main, Germany have taken out a British patent for an invention producing on the paper web, while it is still moist and on the wire cloth or the wet felt, patterns in elevations and depressions by means of rollers on which are corresponding patterns in deeply engraved relief, and there is then sprayed on the web a dye solution from nozzles arranged at an acute angle to the surface, or the dye solution is applied by means of felts which dip at one end in a color bath and trail on the moving paper web. In this manner only the elevations are dyed and the more so the higher they are, whereas the depressions, as well as the placed behind, the elevations, remain uncolored. A certain relief like effect is thus produced so that after treatment the paper presents a good imitation of crocodile leather, platted or wicker work or the like. The effect may be enhanced by applying to or spraying

on the web different dye solutions. It is best to place the roller for impressing the pattern on a part of the wire cloth or the wet felt, where the paper web is already desiccated in large measure; it is also advantageous to arrange beneath the wire cloth or felt opposite the roller a sucker which helps to prevent the paper pulp from sticking to the roller. The impressed and colored paper is finished in the usual manner, and, although it is afterward calendered, it acquires the effect of having a pattern in relief. This paper is intended to be used for bookbinding, wrapping paper and the like.



—The crane equipment for the improvements in the plant of H. Brewer & Co., Tecumseh, Mich., consists of two 8-ton, 30-ft. cranes, two 5-ton cranes, one 8-ton pillar crane and several trolleys and hoists for overhead I-beam track. The equipment is being furnished by Northern Engineering Works, Detroit.

—The Canadian Boomer & Boschert Press Co., Limited, of Montreal, have been given the contract by Geo. F. Hardy, of New York, for the hydraulic pulp and baling presses required by the Anglo-Newfoundland Development Co. in their new mill at Grand Falls, Nfld. The outfit consists of eight inverted hydraulic pulp presses of 600 tons power each, six hydraulic baling presses, with weighing attachments, two high-pressure and two low-pressure hydraulic power pumps, and high and low-pressure accumulators. The necessary pulp carts for conveying the pulp from the wet machines to the presses are also included, the whole outfit weighing about 150 tons. The contract calls for delivery of the pulp from the presses at not less than 58 per cent. wood air-dry, thus effecting a very large saving of freight as well as reducing the bulk more than one-half, an important item in export shipments.

CALENDERS OF LARGE DIAMETER.

Herr H. Postl, of Krampe, near Grünberg, Silesia, in an article in "Papier-Fabrikant," translated by "Paper Trade Journal," enunciates the principle that in consequence of the surfaces of contact of two rollers increasing with their diameters the unit superficial pressure is thereby diminished. Rollers for satin finish are accordingly, it is said, chosen of as small diameter as possible, high superficial pressure, and consequently increased friction thus resulting.

Another ground of preference for rollers of small diameter is furnished by their costing somewhat less than wider ones, while small (and consequently thin) rollers can produce an equal glaze with somewhat less power than large, thick rollers. A number of paper mills with dry glazing machinery, the rollers of which averaged 10-15 c.m. (about 4 to 6 inches) in diameter, have for years been trying to utilize these elements, in proof of the value of which technical proofs can be adduced. From a practical standpoint, however, the situation is different.

The writer of the paper quotes results of his practical experience on the subject. The difficulty of conducting the web of paper between rollers increases with the reduction of their diameter. In order to bring a web without ground for complaint through an arrangement of four rollers of 10-15 c.m. (about 4 to 5 inches) in diameter, even at a speed of about 30 metres (98.4 feet) per minute, requires very active helpers. If there is a further increase of the speed of a paper machine connected with such thin glazing rollers it will be impossible to get the web through, owing to difficulty in the operation itself as well as to the formation of creases.

In proportion to the smallness of the rollers, so much the greater will be the risk for the attendants in conducting the web of paper through with very thin rollers, there not being sufficient room

for protective appliances at the point of entrance. Unless the staff has been trained to lead the web of paper by means of rounded guides to the point of entrance, constant accidents will take place. Even, however, with reliable and skilled workpeople who always use the guide injuries to the hands or fingers of the staff caused by the satin finishing appliances cannot be wholly avoided. This danger often arises from the entrance and outlet points being mistaken for each other, the former lying so close together.

A very considerable proportion of seconds is often produced by dry satin finish machinery, particularly in the case of papers deficient in strength. These seconds arise partly during the conducting of the paper, and partly through creasing. The latter defect, in spite of all preventive appliances, can never be wholly avoided with that method of satin finishing, even by the use of swinging guide rolls.

In conducting the web of paper from the drying cylinder to a satin finishing appliance with thin rolls it must always be kept at a greater tension than is necessary with thick rollers, so as to prevent creases in the paper. The reason is that the pressure and friction between rollers of large diameter is exercised gradually on the intervening web of paper, while with rollers of small diameter its action is sudden, similar effects being noticeable with couches, wet presses, etc. The necessity of keeping the web intended to pass through thin rollers at a higher tension affects the strength of the paper, which is liable to crack in weak or even slightly damaged places.

From his own experience Herr Postl states that the durability of thin glazing rollers is naturally less than that of those with larger diameter. As the work and wear fall upon the surfaces of the rollers, the greater such surface the less frequently is pressure or friction exercised on its separate portions, which wear away the less quickly. Glazing rolls cannot be polished very

often on account of the expense involved, while the hardness of their surfaces is affected by the too frequent use of the emery disc on the turning lathe.

In conclusion, he disputes the opinion sometimes expressed that with small rollers there is less danger of the lower one giving way, urging that, notwithstanding the apparent theoretical advantages of glazing appliances of small diameter, practical experience shows that in the installation of such machinery rollers of larger diameter should be preferred.



MACHINE-GLAZED PAPERS.

It is well known that as a general rule the tensile strength of a paper is considerably greater in the machine direction of the web than in the cross direction, but that the stretch or breaking is greater in the cross direction than in the machine direction.

In the "Wochenblatt für Papierfabrikation," however, Gustav Schacht records some interesting exceptions to this rule. These are machine-glazed papers, some containing a little mechanical wood and others pure chemical wood pulp papers, made on a machine of the Yankee type, with automatic take-off, by means of a top felt running round the upper couch roll. The paper received its machine glaze on both sides, being pressed moist against a large drying cylinder of 8½ ft. diameter, and then against a second large drying cylinder of 6½ ft. diameter. It was then finished through a three-bowl calender before reeling; the production was 8 to 10 tons per 24 hours, according to weight, and the machine was served by two hollanders of 8 cwt. capacity. The preparation of the stuff for this type of paper was quite special. In order to ensure the successful taking off of the paper on the couch felt at high speed, the stuff had to be beaten very "free"; it had to be run on the wire with only a little water, shaken

very gently, drained with only one vacuum box with a very slight suction, and couched with very light pressure; but, on the other hand, it had to be pressed against the first drying cylinder very heavily. It came from the first cylinder still somewhat moist, and was pressed on the other side against the second cylinder, which was heated with steam at about 38 pounds per square inch. The paper was pressed heavily against this second cylinder by a press roll running in the drying felt, and in this way a machine glaze finish was imported to both sides.

Paper thus manufactured is, of course, somewhat exceptional, and its tensile qualities were found to be somewhat peculiar. As a rule, it was found, particularly in the thinner sorts, that this paper possessed a tensile strength and stretch which were equal in both directions of the web. In some cases, chiefly thick papers, the tensile strength in the two directions differed in the usual manner, but the stretch in the two directions was the same; in some other cases the strength and stretch differed in the same way as in ordinary papers. These papers, from the nature of the stuff, were only moderately strong, but they were extremely pliable and the thicker sorts had a leathery character; they showed a very long tear. The relatively low strength was partially compensated by its uniformity in the two directions.

An old proverb says that "the paper is made," i.e., receives its character, "in the beater," but in this case the peculiar properties of the paper are imparted on the paper machine, and particularly by reason of the twice repeated heavy pressure against the hot drying cylinders. The fibres are long and very little beaten, and a very loose, very moist sheet is subjected to very heavy hot pressure, under which the fibres are fixed closely together in positions from which they cannot move during the drying, and no shrinkage can take place. At present Mr. Schacht contents himself merely with recording the fact, and

is unable to offer any explanation as to why some papers show these tensile peculiarities, while others made on the same machine are like ordinary papers.



BRITISH WOOD PULP ASSOCIATION.

The twelfth annual meeting of the British Wood Pulp Association was held on the 25th ult., J. A. Nordberg in the chair. The committee's report dealt somewhat lengthily with the question of contract notes. Some of the conditions agreed upon were as follows: The pulp to be packed in bales of declared uniform weight, or a specification to be given, stating weight and number of each bale. The price to be given per ton of 2,240 pounds (1,015 kilos) gross for net. By air-dry weight is to be understood 90 parts of absolutely dry pulp and ten parts water. Should the quantity invoiced be questioned, the dispute to be determined by a qualified analyst, samples to be drawn from accurately weighed, intact bales, and from not less than six bales. Any dispute as to quality to be referred to arbitration. Buyers or sellers to have power to suspend deliveries by reason of "force majeure," or any contingency beyond their control, such as act of God, war, strikes, lock-outs, etc. This last clause came in for some severe censure from Mr. Becker and others on the ground of being capable of all kinds of interpretations, and of working hardship on the buyer in many instances.

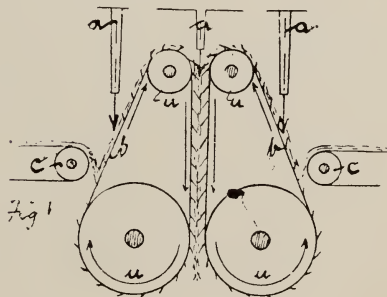
Capt. Edward Partington was re-elected as president of the Association; Frank Lloyd, A. E. Reed, C. T. Owen, W. G. Taylor, C. T. Craig, L. P. Andrews, H. B. Wood, J. Y. Henderson and J. A. Nordberg were re-elected vice-presidents; C. D'Oyley Mears re-elected honorary secretary; O. Reich, honorary treasurer.

At the usual banquet in the evening there were 180 members in attendance, and a very pleasant time was spent.

REFINING FIBRES BY WATER PRESSURE.

Among recent experiments connected with the bringing of fibres to the desired fineness is the loosening of them by jets of water under pressure, the work being perfected in the hollanders with or without the addition of other materials. The advantages of this system include a saving in the amount of further treatment required and the simultaneous cleaning of the material.

The method in question is applicable under two forms—stationary and rotating—the removal of the expelled fibres being facilitated by the continuous action of the jets, while the loosening of the fibres is said to be most successfully effected when decomposing appliance at-

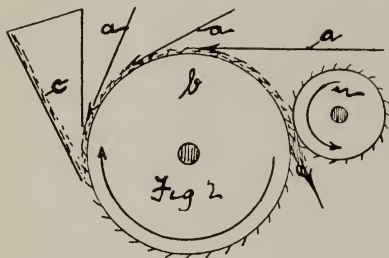


tains the highest possible number of revolutions. Efforts have lately been made to materially increase this number of revolutions by water or air pressure. For this purpose small turbines are constructed, driven on two sides by jets, greater speed being thus obtained in proportion to the pressure of the motive force. It is, however, not out of the question that the speed of revolution can be increased by other means.

Various appliances have been introduced for the dissolution of the masses of fibre, but in most of them the fibre is driven in the direction of the current. As it has also been established that the effect of the jets can be increased by the conveying of the fibre by means of quickly rotating drums or similar appliances, in a direction opposite the cur-

rent, Fig. 1 shows two drawing and irradiating belts arranged close to each other. Three jets, *a*, are directed against the belts *b*. The fibres are conducted to the outer sides of the belts, and while being moved upward are loosened by the jets of water. A further treatment of the fibres is effected in a downward direction at increased speed by the central jet, the fibre being again conducted to the belts.

The fibres, after descending, fall upon a cloth, where the water is extracted from



them. The repeated action of the jets of water on the masses of fibre effects a thorough cleansing of the latter. In cases where a longer washing is needed it can be continued in special appliances. The teeth fastened to the surfaces of the belts are in an upward direction, so that they take up the fibres from the conveying belts *c* and move them against the jets. The width of the belts depends upon the number of jets used, while their speed is regulated by the force of the jets. Both the drawing and irradiating belts usually travel at the same speed. A trial has been made of establishing a certain difference between their velocity, but no particular advantage was discernible, while the loosening of the fibre was not uniform.

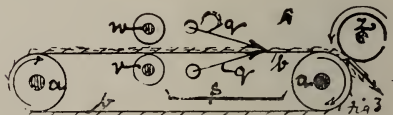
Fig. 2 shows three jets, *a*, obliquely directed against the circumference of drum *b*, provided with sharp points. The fibre is introduced by means of conveying belts from receptacle *c*, being moved against the jets by the points on the drum. At the back of the drum is a roller, *n*, with sharp points, which rotates quickly and removes the fibres which have been subjected to the action of the jets. The quick revolution of this roller

removes the flow of water from the drum and facilitates the washing and straining of the fibre.

In all these applications of the system the greatest uniformity possible in the introduction of the material is important. When introduced by hand various degrees of thickness may be presented by the layer of fibre, so that the use of the special machinery for that purpose is recommended. An additional roller is sometimes introduced for the purpose of further treating the fibres.

Another form of applying this principle is illustrated by Fig. 3, in which the fibres lying on a horizontal belt are loosened by jets of water, the sharp points on the belt being in an oblique position. The conveying belt, *b*, moved by two end rollers, *a*, travels in the direction shown by the arrow. On the upper part of this belt is a roller with teeth, *w*, and underneath the smooth roller, *v*. The fibre on the conveying belt is at the same time subjected to the action of jets of water from above and below. When it reaches the end of the belt the fibre is carried along (together with a part of the water) by roller *z*, while another portion of the water falls from end roller *a*. Any remaining water falls into a channel, *s*, and can be conducted toward one side of the machine or into a reservoir underneath.

The same arrangement can be used for loosening moist or dry sheets of wood pulp, but in that case the upper roller *w* has to be placed at a suitable height,



or can be altogether left off, as the sheets are held by the points on the belt. For the purpose of quickly loosening the sheets of pulp by jets of water an effort is made to thoroughly moisten them, so that the particles of pulp may be washed off by the jets, an endless belt bringing the sheets from the moistening receptacle up an inclined plane.

DYEING OF PAPER.

Paper consists of cellulose, so there must be a general resemblance between the dyeing of paper and the dyeing of vegetable textile fabrics, and both the direct cotton colors and the basic dyes are used in paper as in cotton dyeing. A substantive dye for cotton is also one for paper, and a basic dye has very much the same affinity for sized paper pulp as it has for mordanted cotton. Apart, however, from the difference between the surface offered by a yarn or woven fabric to the dye and that presented by paper pulp, there are other differences in action toward dyes and mordants of paper and ordinary textiles, due to the radical differences in the processes through which the materials have passed before they reach the dyeing stage. Hence it is impossible to argue from paper dyeing to textile dyeing, or vice versa. A basic dye, for example, which will dye cotton cloth very satisfactorily may or may not dye a paper web properly, even although the web and cloth may have been made from the same vegetable fibre. Again, a direct dye which requires after treatment on a cotton or linen fabric to make it fast may give equal fastness on paper without any after treatment. We can say this, at least, about paper dyeing, that it is quite as empirical as ordinary textile dyeing and that there is as little reliable theory to guide us in the one case as in the other.

The pigments used in paper coloring are chiefly ultramarine, Prussian blue, chrome yellow, oxide of iron, ochres and red lead. Some of them can be produced upon the fibre, e.g., Prussian blue by causing sulphate of iron to react either on the pulp or in the finished paper with potassium ferro-cyanide, ochre browns by the same method, substituting carbonate of soda for the ferro-cyanide, chrome yellow by the interaction of a lead salt with bichromate of soda or potash, etc. When generated on the fibre in this way, the pigments adhere much better than

when put into the pulp ready made. In this latter case it is advisable to boil the pigment with starch to begin with. The mineral pigments and also white bodies used for filling purposes, such as China clay, gypsum and barytes, have the power of absorbing artificial dyes and of binding them to some extent. Hence it is by no means uncommon to use artificial dyes and fillings or pigments together. For example, in cases where a mineral red, such as ochre, is not bright enough, an organic red, such as magenta, may be used with it. Again, a pigment may be mixed with China clay or any white filling to reduce the depth of the color. Resin, too, helps to fix pigments in paper, and has a certain amount of affinity for many organic dyes.

When it is possible to generate a pigment in the pulp, that course should always be preferred to adding the ready-made substance. No grinding will give the pigment in such a finely powdered state as is produced by precipitation, with the result that the pigment chemically formed in the pulp not only gives a better color than the ground pigment, but, as above stated, adheres better. Chrome yellow and Prussian blue are almost invariably formed on the fibre. Ultramarine and red lead, on the other hand, cannot be so formed, and must be most carefully ground and sifted before addition to the pulp.

The natural dyestuffs have undergone the usual results of modern changes, in paper, as in textile dyeing, but they seem to hold their own slightly better with paper than with textiles. The natural dyestuffs may be enumerated, so far as paper dyeing is concerned, as annatto, turmeric, safflower, red-wood, log-wood and cochineal. Others have been used in former times, but the present development of the paper dyeing industry has enabled us to dispense with them. Of the six natural dyes just mentioned, the first three are substantive to paper pulp, the second three requiring a mordant.

Annatto is a vegetable coloring matter still used for dyeing many products, especially cheese. When it is used for dyeing paper pulp it is dissolved in boiling weak carbonate of soda. One pound of annatto is dissolved in three gallons of water in which a pound and a half of soda crystals has previously been dissolved. The alkalinity given by the soda is essential to complete penetration, especially in the case of pulp consisting of various fibres. With this penetration level dyeing is an impossibility. It has been found, however, that the brightness of the dye is injured if the boiling in carbonate of soda is unduly prolonged. Alkalinity is indispensable in the case of annatto solutions employed for the dyeing of paper pulp, but it must be kept quite low. Neutral solutions are deficient in penetration.

Turmeric is useful in paper dyeing, chiefly because it gives yellows faster to acid on paper than those it gives on cotton, and because it is easily prepared. All that is necessary is to boil the root of the curcuma with water and to add a little methylated spirit for the purpose of preservation. If the root decoction is properly made, i.e., as strong as possible, not much alcohol is required to make it keep. If the decoction can be used immediately for paper pulp dyeing no spirit is required.

Safflower is rather an awkward dye to use with paper pulp, in spite of the fact that it is very productive and gives beautiful shades. The blossoms of *Carthamus tinctoria* contain two coloring matters, one pink, one yellow. For yellow dyeing they are extracted with cold water, and the pink can be got separate by subjecting the residue to the action of boiling water. Both the yellow and the red are apt to be unlevel, especially with pulps containing fibres of different vegetable origin. The dye solution must be alkaline when added to the pulp, and the necessary acid is put in afterward with tartaric or acetic, or, still better, with formic acid. The final color can be controlled to some extent by means of the organic acid, whichever

one is used. In red dyeing with safflower, the acid inclines the shade to yellow. In yellow dyeing, an excess of organic acid makes the color of the pulp pales. A beautiful red can be got by combining red safflower dyeings with annatto. The annatto is put to the pulp first, and is topped, before any other process is begun, with the carthamus dye.

These substantive natural dyes have gone out of use in this country to a great extent, although they still load it over coal tar colors in paper mills in remote parts of the continent. At the same time they give very pretty shades, and are, naturally, in view of the competition with them of the artificial dyes, much cheaper than they used to be. It is, therefore, to be regretted that they are not more often used in cases where no great stress is laid upon fastness. It is obvious, when we contrast the uses of paper with those of ordinary textile fabrics, that, on the whole, the requirements as regards fastness, except probably to light, are much less with the former than with the latter. This remark applies evidently in a measure to the adjunctive natural dyes.

Redwood is still used to a small extent in paper dyeing. The wood is derived from several species of *Cæsalpina*, and each species gives extracts producing different shades of red and brown. The mordants used are various. Alumina and tin are the only ones used in practice, and the resulting dyeings depend on whether these bodies are used separately or together. The great point is that the shade depends more upon the dyeing temperature than on the mordant employed. The fastness is in all cases small.

Cochineal is much too expensive for use, except with very special papers. For these, ammonia cochineal, prepared by stewing the cochineal with the alkali, is occasionally used for the sake of the beauty of the fastness of the resulting color.

Logwood is used by the paper maker in the preparation of several colors by

virtue of the fact that the extract gives violet lakes with tint mordants, grey or black lakes with iron, or chrome, and blues with copper mordants. Logwood is, nevertheless, especially liable to changes in color caused by the size. Rosin spoils logwood dyeings, making them dull and brownish, while alum converts logwood blue into violet. Logwood cannot be used nowadays except with very cheap papers, and in most cases its use necessitates topping with artificial dyestuffs.

In cheap paper dyeing the best mordant is tannin. Even when an iron mordant is used for the production of a black, tannin contributes to level dyeing as well as a moderate increase of fastness.

The artificial dyes vary widely in chemical constitution, and hence in their effect upon dyeable materials. It might, therefore, be expected that they would, on the whole, behave very differently to paper pulps in general than to cotton or wool, or even to mixtures of textile fabrics. This expectation is realized to some extent in actual work, but there are more resemblances between the raw materials than there are differences for other reasons. There is no dye for textiles which cannot be used for paper, and vice versa. Acid dyes, basic dyes, direct dyes, whether for cotton or wool, and also the sulphur dyes, can be used for paper pulp.

The paper dyer classifies dyes in almost the same way as his colleague who works in the textile industry. The paper dyer recognizes acid and basic artificial dyes, direct dyes, and the sulphur colors. At the same time he has to make an additional class in favor of the dyes of which cosine is a type. In this class of dyes, which includes fluorescine and several other well known coloring matters, we have probably the most striking difference between paper dyeing and textile dyeing. The dyes of the cosine group are much faster on paper pulp than on textiles, and, in fact, can be used on pulp in the majority of cases without a mordant.

The acid dyes are rather unproductive on paper pulp, although they are more soluble than the basic dyes, and on paper at least they are faster than to light, and they give even dyeings when fixed by the size. Tannin and metallic mordants are practically useless with this class of dyes. The solution of the dye must be mixed with the pulp before any sizing material is added. This is the essential condition for pulp dyeing with acid coloring matters, and heavy subsequent sizing is essential for the production of deep shades with them. A mistaken notion prevails that the acid dyes are unsuitable for unsized papers, i.e., as direct colors. As a matter of fact, they dye blottings very uniformly, as their small affinity for the fibre makes them go on very slowly, and, although the resulting colors are then very fugitive to light, they answer well for cheap goods, as the cost of dyeing is very small, the colors are bright, and fast colors are unnecessary on blotting paper.

Paper pulp dyed with acid dyes is liable to give a finished paper with differently colored sides. This difference is due to the action of the heat on the drying cylinders, and does not occur with basic dyes. Hence when papers, such as blottings, have been dyed with acid coloring matters, the drying cylinders must not be too hot, and the necessary rapidity of drying must be secured by increasing the number of cylinders rather than by making them very hot. For basic dyes, a few very hot cylinders may be used, but for acid dyes, the rule is a drying machine with a large number of cylinders moderately heated only.

The basic dyes require a mordant with paper as in textile dyeing, and it will be as well here to point out, once and for all, that there are differences between the mordanting of ordinary textiles, whether yarn or piece, and the mordanting of paper pulp. These are due to the fact that paper pulp varies more widely in composition in many cases than any textile material. In paper pulp we often get several vegetable fibres mixed to-

gether. Now only cotton rag pulp can be mordanted without previous treatment. Esparto, wood, jute, etc., contain foreign bodies of a resinous or horny nature, which must be removed before the pulp is mordanted. The reagent of most universal application for this purpose is caustic soda. In all cases where adjective dyes are used in paper dyeing, the mordanting must be done in the pulp. The alum used for sizing is usually quite sufficient for mordanting basic dyes. At the same time, they are fixed by China clay and fillers generally fairly well if the basic dye is added to the filled pulp after it has been heated to a temperature of at least 140 degrees Fahrenheit.

The best test of proper dyeing with basic dyes is the appearance of the backwater. This should show only a very slight tinge of the color. If it is too deeply colored, there is, of course, waste of dye, and hence the dye has not been properly fixed, whether by mordants proper, i.e., by alum or tannin (which is sometimes used), or by the mineral fillings, such as gypsum or China clay. When basic dyes are employed for unsized paper, which is rarely the case, a mordant is, of course, indispensable, and, in this event, tannin may be substituted for alum, with considerable advantage, as the mordanting is cheaper than with alum. It is obvious that alum is most advantageous when it fulfils the double function. Basic dyes are more productive on paper pulp than acid dyes, but in any case they are deficient in fastness to light.

Much better results are obtained by using both classes of dye, adding a basic dye to the pulp first and then an acid dye towards which the basic dye first employed acts as a mordant. This is, of course, a rather expensive procedure and is not resorted to, in spite of the fastness of the dyeings obtained, except for dark shades on good class papers.

The direct dyes are but little used in paper dyeing. They cannot be used except for unsized pulp, for the obvious reason that the sizing material would play an entirely different part from that which it plays with adjective dyes. Size

is useful and often essential in dyeing paper pulp with adjective dyes, as it acts on the mordant, and no contact between the dye and the fibre is required; it has rather to be avoided. Hence the intervention of the filling between the fibre and the dye is exactly what is wanted. It forms the lake required and prevents any undue interference with the fibre.

When, however, a substantive dye is in use, that is to say, a coloring matter which can only produce results by coming into direct contact with the fibre, the presence of sizing matter is, of course, fatal, as it prevents that contact. The direct dyes never give very fast shades to light on paper pulp, although their shortcomings in this respect can be removed to some extent by adding Glauber's salt with them to the pulp. They have been most used for "ingrain" wall papers, as with this class of article the results are least unsatisfactory as a whole. Nevertheless, these papers are expensive, and the color fades in a comparatively short time.

Eosines are only used in paper pulp dyeing to improve the shades. They owe their employment to their great brilliancy. They are fixed by the size or filling, and hence cannot be used alone, or to brighten shades produced on unsized or unfilled paper by other dyes. The best sizing material when eosines are to be employed is acetate of alumina, as the cheaper salt generally employed, the sulphate rather dulls the color, i.e., destroys to some extent the special advantage sought to be gained by the use of these particular dyes.

There can be no doubt that the sulphur dyes are destined to have a great future in paper dyeing, but, so far, they are not used to any great extent by the paper dyer. The difficulty in paper dyeing, as in wool dyeing and in textile printing, lies in the necessity of using sodium sulphide to dissolve the dye. This salt corrodes the machine wires, and also decomposes the alum added to the pulp for sizing purposes. The Bayer Company are proposing to help matters by blowing air into the hollander during the dyeing

of the pulp, so as to oxidize the sodium sulphide to hyposulphite, which is without action either on alum or on iron wire. Whether this remedy will answer what is expected of it time alone will show. In any case, it is reasonably certain that the great benefits which have already accrued to textile dyeing by the introduction of the sulphur colors will before long be realized in paper dyeing, a branch of the art for which these bodies, both by their substantive action and extreme fastness, seem to be particularly suitable.

It is naturally quite usual for a paper pulp dyer to have to dye to pattern. He may not only have to dye, say, a light red, but to supply a batch of paper of which a sample is supplied to him. He generally works in this case by rule of thumb—that is to say, by a guess and trial method. This is only successful, however, in cases where long experience of the effects of the various dyes upon different pulps enables the dyer to hit off the proper quantity of the most suitable dye after a very few attempts. Quantitative tests with small amounts of the pulp to be treated afford, however, a means of securing the desired result. A small known quantity of the pulp is dyed to pattern, and the amount of dye used is noted. It is then merely a question of multiplication to find out what amount of the dye is required for any known larger amount of pulp. In this laboratory work the color may be added to the pulp either in the dry state or in the form of a standard solution. The former method has the advantage that it is applicable both to soluble and insoluble colors—that is, to pigments as well as to dyes. The test amount of pulp should be as large as can be conveniently handled on a laboratory scale, and the amounts, both of the pulp and of the color used to bring the pattern, must be weighed or measured with the utmost degree of accuracy obtainable. The smaller the initial error, and the less the number by which it is multiplied in calculating the amount required for the large quantity of pulp the better.—H. Robson, in "Paper Makers' Monthly Journal."

EMPTYING THE BEATER.

A practical papermaker writes to "The World's Paper Trade Review," with regard to emptying beaters so as to cause as little variation as possible in the weight of the paper being run on the machine, the writer will give his experience in this work, hoping it will be useful to the inquirer.

Ten pounds is certainly a very great variation on a crown sheet of paper.

In mills where there are neither back-water nor fresh water boxes above beaters to measure the amount of water to be emptied with each beater, then it is better to run the water to time than not, but in this way the quantity of water emptied is subject to much variation, unless the main tank of mill supplying this fresh water is always full, and has an overflow which the beaterman cannot see, and also unless he can open his valve at each beater he empties in exactly the same ratio every time, which is almost a human improbability. This method should not be used.

A better means of supplying the requisite quantity of water for each beater is to put in a fresh water box or tank that will hold that amount only, the stuff being all out of the beater just as nearly as possible when all the water is out of the tank, the filling of the tank being effected by a ball-float tap, with an arrangement attached that will hold up the lever, and keep the tap shut when emptying tank.

Another system on the same lines as the latter for giving the right and regular quantity of water to each beater at emptying—and the best for it contributes to economy, by saving fresh water and the excess back-water from the machine and what it contains—is to install a large tank in the beater-room which will hold as much as will be sufficient to empty several beaters. Send to it all the surplus back-water from the machine, have a float in the tank, a rod in the float, and a pointer at top of rod to mark off the quantity of water used or required to empty with each beater,

on an index outside of the tank, graduated in inches, and all in sight of the beater hands.

If not enough back-water, a fresh water pipe must be there to add to tank what is wanted, but the tap of this pipe must be shut or closed before the emptying of the beater begins.

The last manner of applying the water to emptying the beater is by two pipes branching from the main pipe from tank; one connected to the emptying pipe near beater valve, the other at side of beater in usual way or over it, between front side and mid-feather, but anyhow always in front of the beater roll, for thorough mixing with the pulp (say half of the water going each way), no matter whether the emptying pipe is at front or back end of beater or both. Have seen beater water pipes nearly directly over stuff pipes with the worst results.

There is a general tendency when emptying to draw the valve entirely out by tilting the valve only to uncover one-fourth of the area of the valve seat; the beater will not only be emptied as easily but quicker, especially if the emptying pipe between beaters and chests is a long one, also dispensing with air pipes which are apt to choke up with stuff, but the stuff will also be more equally mixed with the water, and almost no raking out required. With a little care in working the water valves from start to finish of emptying, the variations in weight of paper on machine will be from one to two per cent. The writer has done it for years.



TESTING FOR ROSIN, GLUE, AND CASEIN SIZING.

Rosin sizing is now by far the chief method for making paper impermeable. For special purposes, when a very durable paper is required, glue is added to the rosin, or used as a total substitute for it. Starch is often also used to improve the appearance of the finished paper. Casein is not unfrequently employ-

ed, with the object of diminishing the penetrability of the paper and of improving its "handle." The following tests are here suggested for the identification of the various sizings:—

Whether in rosin sizing, the rosin itself, or resinate of alumina, or both together, produce the desired effect is not as yet exactly known. In any case, free rosin is always present in the paper, and this fact forms the basis of the methods for recognizing rosin sizing. The paper is extracted with hot alcohol, and the filtrate which contains any free rosin that may have been present is diluted with water. If it then becomes turbid, rosin has been used. The delicacy of the reaction is increased if a few drops of hydrochloric or acetic acid are added to the alcohol before use. If the amount of paper at disposal for the test is very small, glacial acetic acid can be used instead of alcohol, with advantage. It must be remarked that the turbidity on dilution must be decided. There opalescence is no proof of the presence of rosin sizing. It may result from traces of rosin in the raw pulp if alcohol is used, or of calcium sulphate in the loading if glacial acetic acid is used. Additional security is afforded if a portion of the alcoholic or acetic extract is evaporated down. If rosin sizing has been present, the residue will be in fair amount, and will be tough and sticky when hot, and hard and brittle when cold.

The Morawski test for rosin is very delicate, but requires skilled manipulation. A small piece of the paper to be tested is warmed in a dry test-tube with acetic anhydride and allowed to cool. One drop of concentrated sulphuric acid is then run on to it down the side of the tube. If rosin is present a red color, subsequently changing to a brownish yellow, will be developed.

Herzberg's test for rosin is particularly useful, as it can be applied to MSS., printed books, etc., without causing any appreciable damage. Several drops of ether are allowed to fall on the same part of the paper in succession, each drop being allowed to evaporate before an-

other is permitted to fall. If the paper is rosin sized, a border of rosin will eventually be formed round the spot. This brown border is best seen by transmitted light.

For quantitative estimation of the total rosin in a paper, a weighed scrap is boiled with a 5 per cent. solution of caustic soda lye, and the filtrate is treated with sulphuric acid; the precipitated rosin is dissolved in ether, and the rosin left on evaporating the ethereal solution is weighed.

A glue sizing is superficial only, while a rosin sizing penetrates all through the paper. Glue differs from rosin in being insoluble in alcohol, and in being soluble in hot water. To detect it, therefore, the paper is boiled in water, which dissolves any glue present, and leaves rosin undissolved. The solution is filtered and the filtrate is concentrated. If it contains glue it turns milky on the addition of strong spirit, and if then heated on the water-bath gives a flocculent precipitate, the fine particles giving the milky appearance, clotting together. If this precipitate is treated with a solution of iodine in iodide of potassium it is stained to a pure yellow. If any blue grains appear starch is present as well as glue. Such grains may be invisible except under the microscope. If the aqueous solution of glue is evaporated the residue obtained is the exact opposite of that got by boiling down the alcoholic solution of rosin above mentioned. That residue is soft and sticky when hot, and hard and brittle when cold. The glue residue, on the other hand, is hard and brittle hot, and soft and sticky cold.

Another test for glue depends on its power of reducing quicksilver to the metallic state on boiling. The test is, of course, available only when no other substance having the same power is present. It is executed by tearing up small at least half an ounce of the paper and boiling it in distilled water. In the meantime, mercuric oxide is precipitated in another vessel by caustic soda from a solution of mercury bichloride. The

freshly precipitated oxide is boiled with the filtrate from the paper. If glue is present, the oxide turns first green and then to black metallic mercury. The first change proves nothing. The black metallic precipitate alone is a proof of the presence of gelatine. It is proved to be mercury by being insoluble in boiling hydrochloric acid.

A still more delicate and reliable test is that with tannin, which precipitates aqueous solutions of glue. The paper having been boiled with water the decoction is filtered and tested for starch with iodine. If the carbohydrate is present, it is removed by adding solution of iodine in iodide of potassium and solid sal ammoniac. After some hours (best after the mass has stood all night) the liquid is filtered and treated with alum and tannin, both dissolved separately in water. The presence of glue is then shown by the formation of a heavy flocculent precipitate. This precipitate if heated dry with soda lime will evolve ammonia, with its characteristic smell and action on litmus and turmeric papers. It turns moist red litmus paper blue, and moist yellow turmeric paper brown.

It must be mentioned that a glue sizing may have been made insoluble by treatment with formaldehyde or bichromate, in which case boiling the paper with water will not extract it. Hence a further test should be made. Boil the paper with half per cent. solution of caustic soda, feebly acidulate the decoction with acetic acid, evaporate it down, and see if the residue gives off ammonia on heating with soda lime. If it does it contains nitrogen from glue or casein.

Traces of glue or casein may escape detection by any of the above tests. The million reagent for albumens must then be used, for glue and casein always contain albuminous matter. The paper to be tested it wetted with the reagent, and carefully warmed over a small flame. A red color is developed in the presence of albumen, and varies from a pale pink to a brick red, according to the quantity

of albumen reacting. The color ultimately changes to brown.

The Million test must not be used if the paper contains ordinary albumen or simple hydroxylised aromatic compounds. The reagent is a diluted solution of mercury in forming nitric acid.

The best method for estimating glue quantitatively in paper is that of Kjeldahl.

Casein is insoluble in alcohol, which distinguishes it from rosin, and in water, which distinguishes it from glue. It dissolves, however, in alkalis. It is extracted from the paper by dilute caustic soda lye, and there is at present no absolutely certain test for it. According to Adamkiewicz, however, the soda solution gives a reddish violet color if casein is present, on adding it to a mixture of concentrated sulphuric acid with twice its volume of glacial acetic acid. The lye solution should be added in all cases to the mixed acids, and not the acids to the lye.—“Papier Fabrikant.”



FORESTRY CONVENTION.

The tenth annual convention of the Canadian Forestry Association will be held in Toronto on Thursday and Friday, the 11th and 12th of February next. This is a month earlier than usual, the change being made to suit many of the lumbermen, whose business engagements compel them to be abroad in March. It is five years since this important association held a meeting in Toronto, the coming convention being held on the invitation of the Toronto Board of Trade. President Snowball, of Chatham, N.B., will preside, and a number of eminent authorities on forestry matters will give papers and addresses.



CANADA COATING MILLS.

It will interest our readers to know that the recently published Christmas

“Globe” was printed on paper made by the Canada Coating Mills, Limited, Georgetown. It was an admirable number in every way, but no small factor in the finished appearance of its many fine illustrations was due to the fine quality of the paper stock. Nearly four carloads of paper were required for the publication. The Canada Coating Mills also recently received an order from the T. Eaton Co., Toronto, for over eight carloads of paper for immediate delivery for that company's new mail order catalogue. The bulk of this was delivered by the end of last year. The paper company are now working nights, with four machines running all the time. Business looks very bright.



CHRISTMAS TREES.

It is estimated that United States forests have just supplied four million Christmas trees, on the basis that one out of every four families observed the tree custom at Yuletide. Gifford Pinchot, Chief United States forester, however, is said to uphold the Christmas tree custom, and believes it should be maintained. “The number of trees cut this year,” he said, “is insignificant when compared to the consumption for other purposes, for which timber is demanded.”

This clearing of an area equal to a good-sized farm should not be the subject of much worry when it is remembered that for lumber alone it is necessary to take timber from an area of more than 100,000 acres every day of the year.”

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A BY-PRODUCT PROMISING AS PULP-WOOD.

As a source of profit, possibly the least promising object imaginable is a Norway or "red" pine stump, rearing its unsightly stub from the soil which its presence renders unfit for cultivation.

That these stumps were very resinous has long been known to a few persons. Relatively large sums of money have been spent in working out methods for recovering the resin and its allied constituents, such as turpentine. These efforts have gradually met with greater success, so that within the last few years plants have been built which have extracted turpentine alone; and have met with moderate commercial success. Still other plants have first extracted turpentine, and have then employed very high temperatures to drive off the other contained products. This heat carbonized the wood, and thus destroyed its fibre.

After many years of exhaustive research and practical operation on a commercial scale, certain parties have recently worked out a process whereby the valuable products may be separated from the wood, leaving the fibre perfectly intact and free from all but about 2 per cent. of inter-cellular matter.

Stumps which have been cut for fifteen to twenty years lose, by decay, all their "sap" wood, or non-resinous portions; and it is found that the remaining parts are as clean and bright and strong as freshly-sawed timber. The first plant to make use of the newly-discovered methods on a commercial scale is now rapidly nearing completion at Cadillac, Mich. This works will have a daily capacity of fifty cords of raw material, which is first reduced to five-eighth inch chips in a common chipper, and is then passed through the several stages of the process, being finally discharged in a condition, seemingly, strikingly well adapted for the making of pulp.

Preliminary tests, which have been made by practical paper mill men, bear

out the belief that these chips will make a very superior grade of sulphite. The owners are investigating and considering the use of this spent wood for the making of several special grades of pulp.



ANGLO-NEWFOUNDLAND DEVELOPMENT CO.

At the annual meeting of the Amalgamated Press, Limited, recently held in London, Hartley Aspden, the chairman, read the following cablegram from Lord Northcliffe, who was visiting Grand Falls: "Since my visit in 1906 I find immense progress has been made in construction of the hydraulic works, the mill and town. The main buildings are roofed in ready for installation of the machinery, which has already been delivered. The branch railway to our seaport has been commenced, and already seventy miles of trunk telephone has been constructed to Millertown and Lake. Eight hundred men are cutting pulp-wood logs for next year. Have already cut between two and three million logs. Barring accidents, every prospect of shipping paper in the autumn of 1909. I spent six weeks in Canada and the United States minutely investigating the paper market. It is universally admitted by experts, owing to depletion of forests, that a rise of the price of paper is inevitable. No hesitation congratulating shareholders on decision to acquire this property four years ago. Grand Falls is already partially lighted by electricity, has telephone service, school, hospital, amusement hall. The factory is the model of the world." One half of the property belonging to the Anglo-Newfoundland Development Co., Limited, is owned by the Amalgamated Press, Limited—which pays on last year's working a dividend of 40 per cent. to its ordinary shareholders—and Mr. Aspden remarked that by next autumn they hoped to be in a position to manufacture pulp, and two or three months later paper. He

said that publishers in future would have to enter into contracts for their paper supplies at a considerably increased price.



THE PULP-WOOD PROBLEM.

The illustrated London weekly, "Canada," says: We have in these columns drawn attention more than once to the fact that the United States had practically exhausted her supply of pulp-wood, and that American mills were looking to Canada for their supply of raw material. How pressing the question has become is shown by the fact that four members of a committee appointed by the United States Congress have been visiting Ottawa to inquire into the lumber and pulp conditions with the American proposal to remove the duty on these Canadian products. There has been a great demand in the United States for the free entry of Canadian pulp-wood, and there seems a likelihood that the duty on it will either be reduced or removed altogether. Although the removal of the duty might be welcomed by the lumbermen, the idea does not meet with general approval in Canada. There is a strong feeling that if the duty is removed by the United States, that the Dominion Government would have to exact an export duty on timber and pulp-wood sent to the States. But a better way still would be to manufacture more pulp into paper in Canada, even if new mills were started by American firms. That would at least keep the industry at home, and would, even if the mills were in the hands of American owners, at least employ Canadian labor.



THE MARKETS.

Toronto, Jan. 9, 1909.

Ground wood is extremely scarce; in fact, scarcely any is seeking purchasers. The long-continued dry weather, followed by the setting in of winter, with only occasional breaks of rain, has

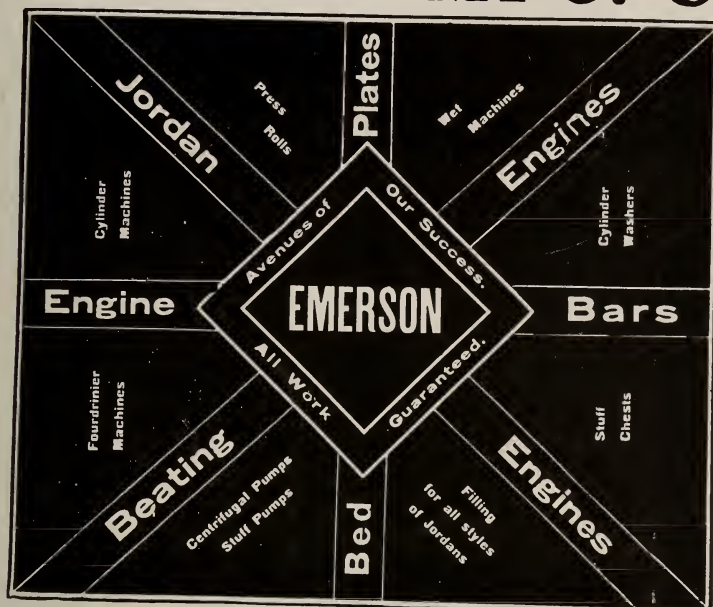
brought water in most sections to such a low ebb that mills have had to stop running or else rely upon auxiliary plants, if they have them. Now that the turn of the year has come, it is doubtful whether conditions can ameliorate before the spring freshets. A good deal depends upon the state of trade and on the way in which it picks up during the next few weeks. It certainly seems now to be rapidly improving. If this continues, and there is every reason to believe it will, then the paper industry, relying upon the production of pulp, will be in serious straits. As it is now, pulp is selling at from \$24 to \$26, or even occasionally \$27, at the mill, according to what orders it may have in hand. Sulphite is \$1.90 to \$2.20 on this side, according to quality. There is about enough news print in hand just now to supply immediate wants, but if the pulp situation does not improve, it will be quite a problem. Sheet news fetches \$2.75 to \$3.50, according to quantity; roll, \$2.40 or \$2.50. Manila is at \$3.75.

British.—According to the last number to hand of the "World's Paper Trade Review," the market for mechanical pulp is much stronger, and it is very evident that higher prices will have to be paid, and it is feared that there will not be sufficient manufactured during next year to meet the requirements of the market. The cheap lots of sulphite pulp which have been flooding the market for some months are now cleared, and there is a distinctly firmer feeling all round. Soda pulp is still weak, except for the better qualities, which keep steady in price.

For chemicals, quotations, it says, are practically unchanged, but forward business is brighter.

Norway.—Water conditions are extremely bad, and general fears are expressed that the mechanical pulp will run up in price, as has been the past experience when conditions have been extremely adverse. The fact that the agents for the United States are now in the market for large quantities of me-

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chanical pulp is having a decided effect in hardening prices. Under present conditions of the paper market this effect will be very serious.

Paper mill employees have recently made new demands on the mills in respect to hours and wages, which, it is understood, were not complied with. There was talk of a lockout, but at last reports this was said to have been averted.

Wanted

Position as Superintendent in Sulphite Mill, with nine years experience making Spruce and Hemlock Sulphite. Strictly temperate. With the best of references.

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Swedish gentleman is open for engagement in Canadian mill. Experienced in Swedish processes of pulp and paper-making, and has worked on Kraft papers. Understands sulphate method and recovery of waste from sawmills for pulp purposes. Address Box 10, care "Pulp and Paper Magazine," Toronto, Canada.

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Position as superintendent or designer of sulphite pulp or wood pulp paper mills. Large experience, as well from European as from American Mills. Consumption of sulphur in last sulphite mill built, 8%. **Brown**, steamed woodpulp and "**natural**"-brown paper, **specialties**. Highest testimonials for economical construction. Best references. Correspondence solicited. Address,

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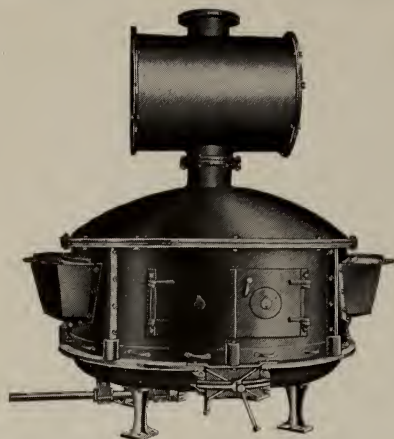


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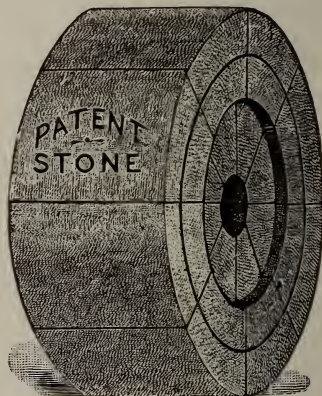
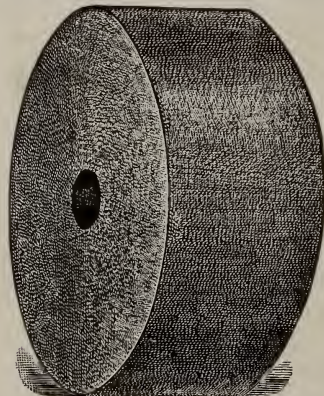
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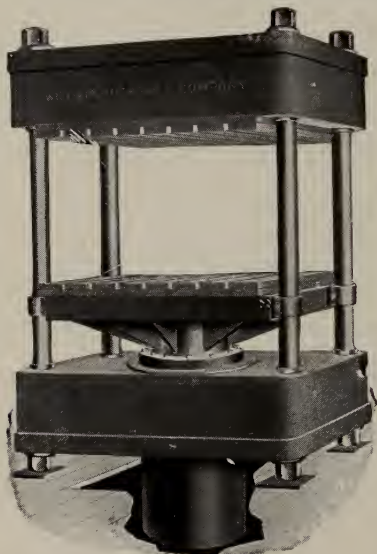
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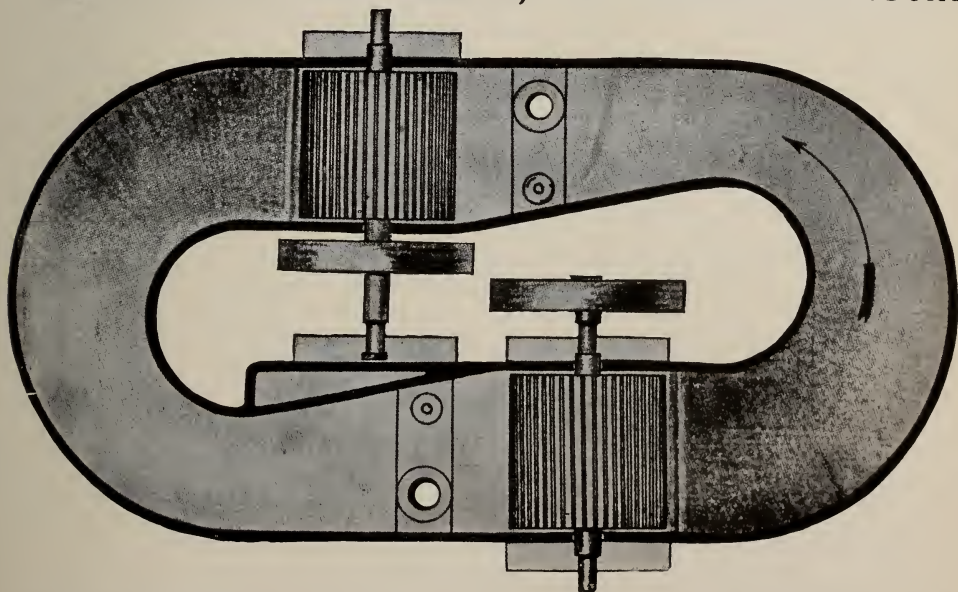
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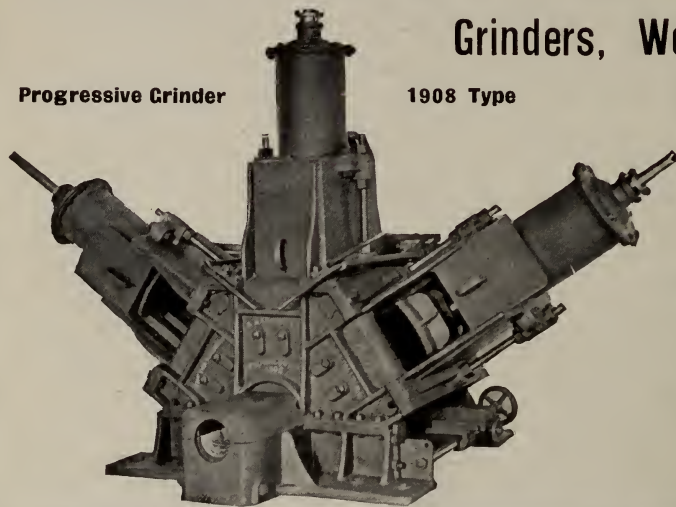
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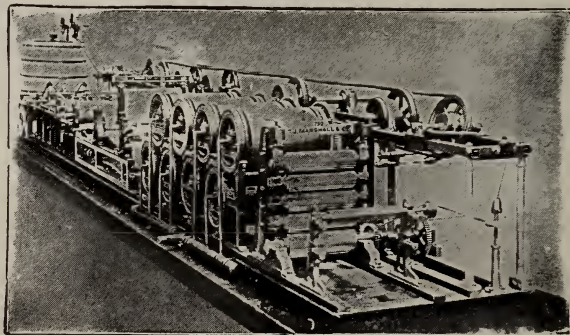
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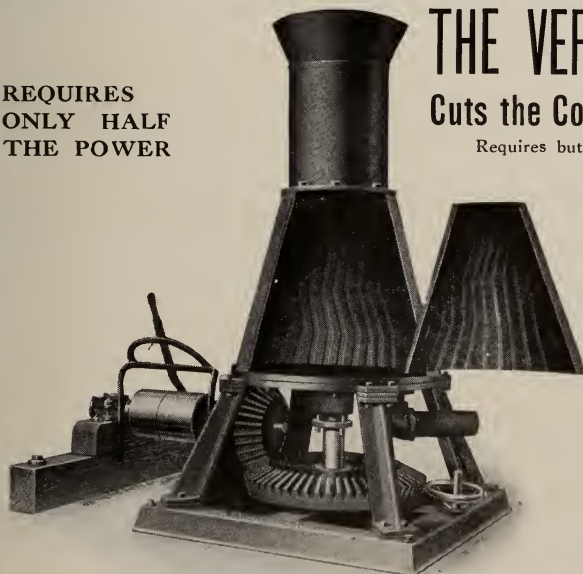
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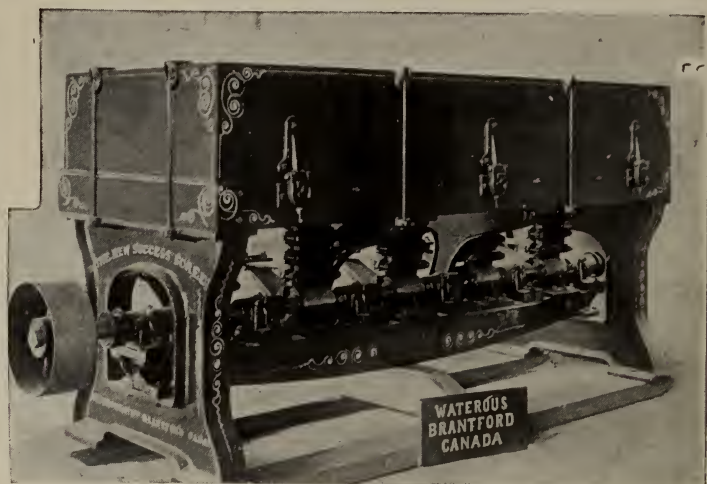


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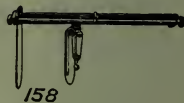
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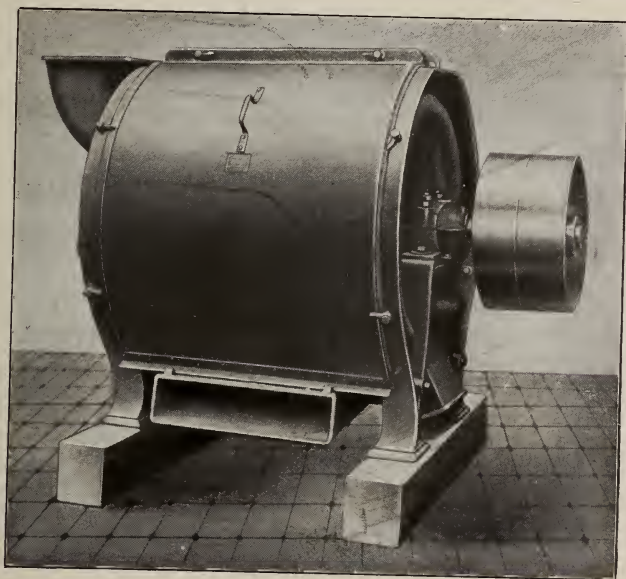
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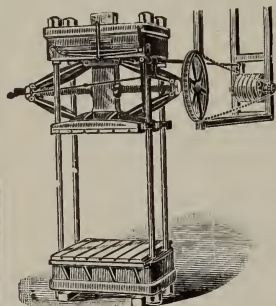
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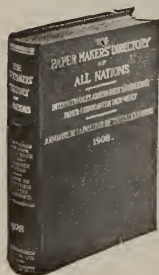
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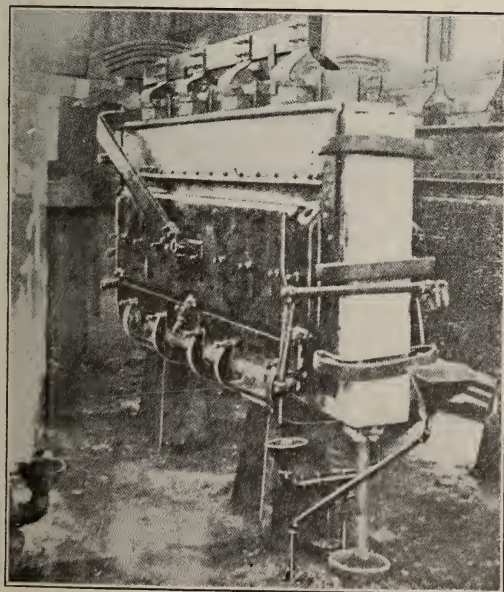
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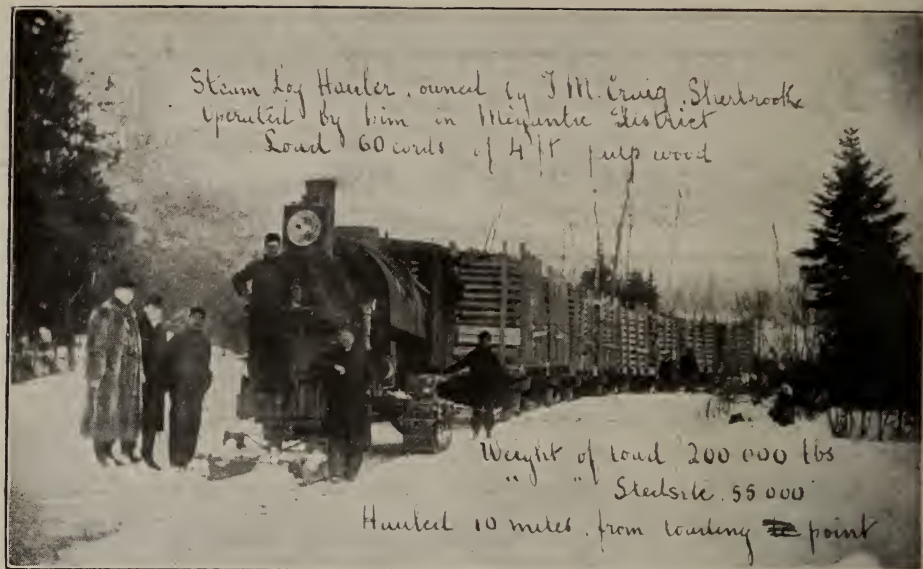
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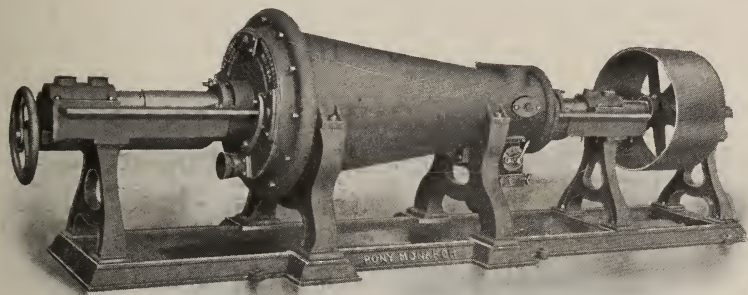
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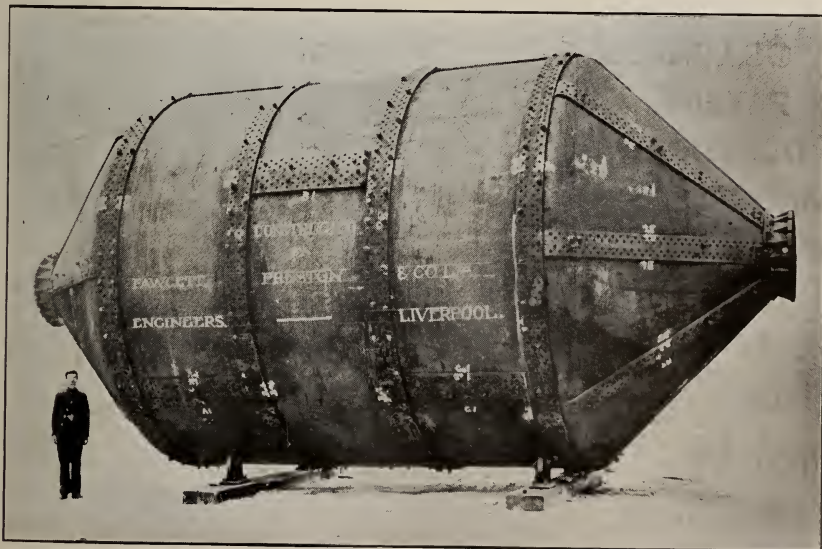
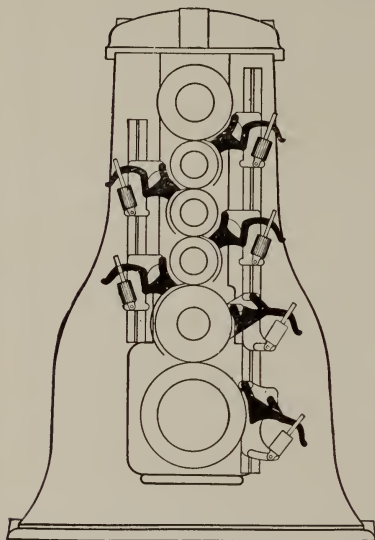


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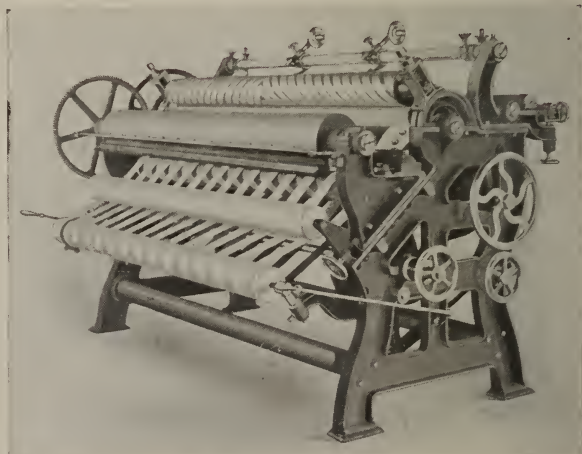


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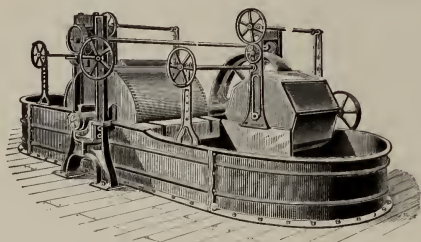
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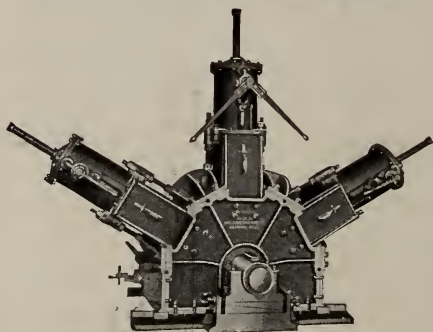
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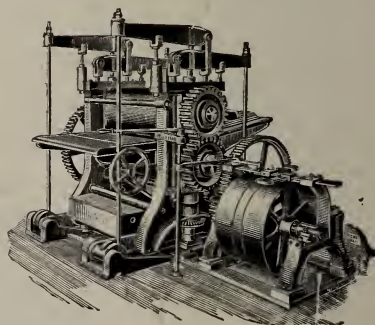
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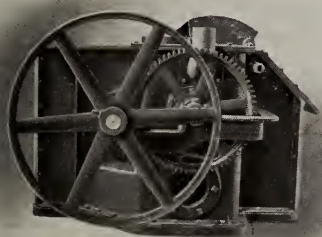
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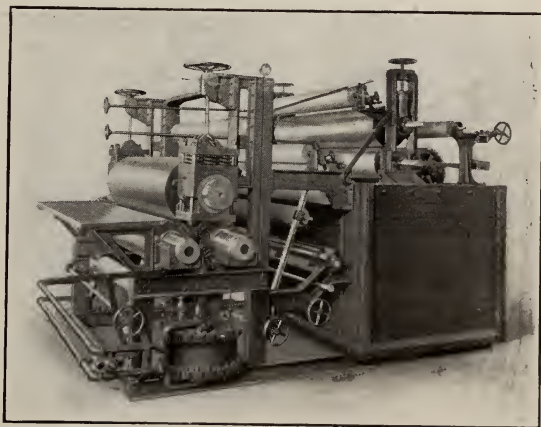


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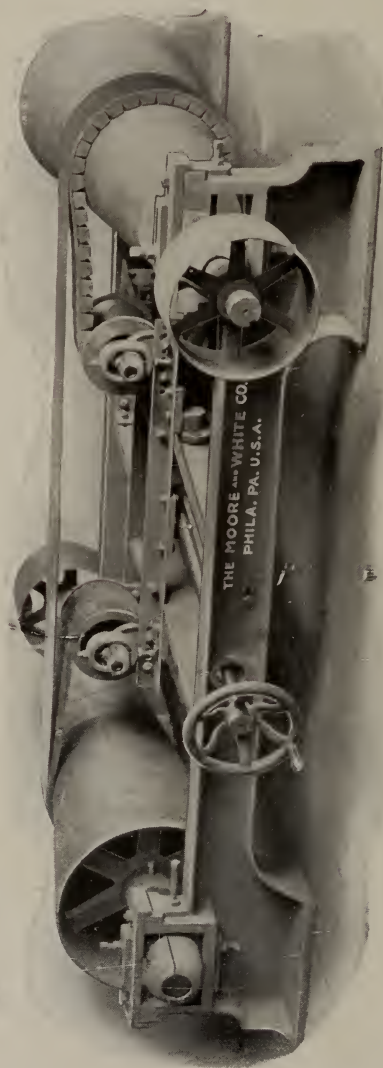


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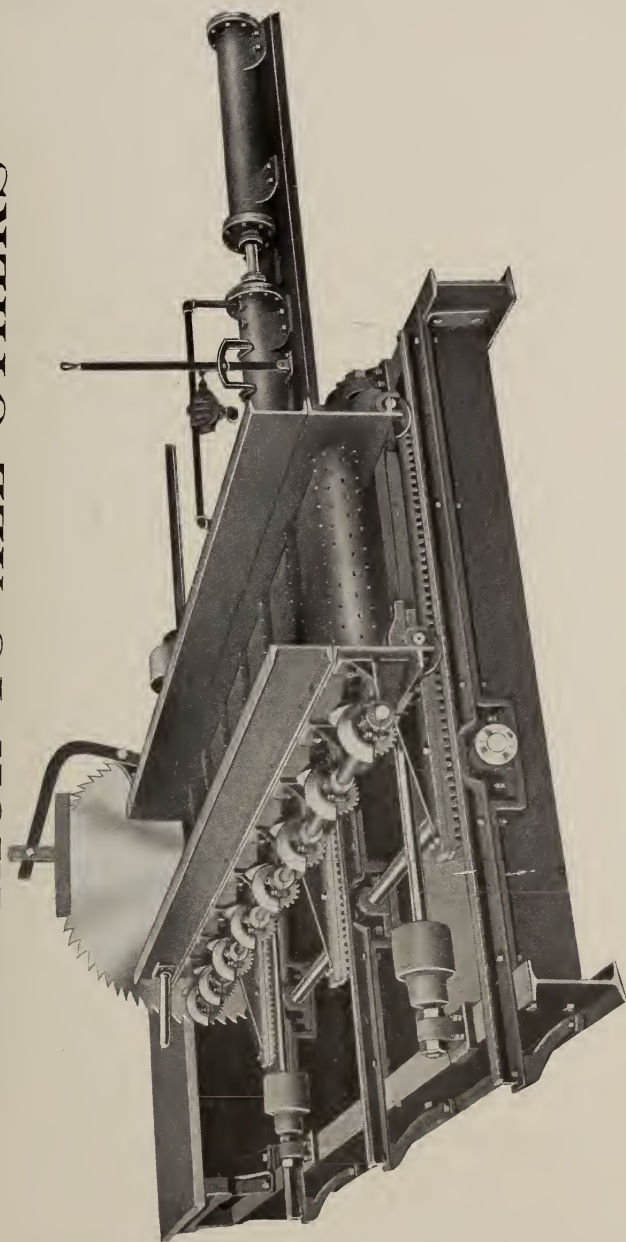
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Vol. 7.—No. 2.

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SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

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A CONTINENTAL PULP AND PAPER POLICY.

In another part of this issue John R. Barber, one of our most experienced paper and pulp manufacturers, gives his views on the line of policy Canada should adopt regarding the pulp and pulpwood question.

Mr. Barber suggests that if the United States will admit Canadian pulp free, keeping its present duty against pulp from other countries, Canada could consent to allow Canadian pulpwood to go into the United States unrestrictedly. This would involve an increase of the Canadian duty on imports of pulp to the level of the pulp duty in the United States which is \$5 a ton on bleached

sulphite, \$3.33 1-3 on unbleached sulphite, and \$1.66 2-3 on ground wood pulp.

Under this arrangement each country would maintain its own present duties on paper imports, either as against each other or as against foreign countries, and we presume Canada would maintain its present duties against United States sulphite. It would be a case of reciprocity in pulpwood and in ground wood, for there should be no objection to the free imports into Canada of pulpwood where by some chance, location favored this step.

Such a policy would, there is little doubt, create the least disturbance of the existing conditions in the business, and it would no doubt lead to a natural and healthy development of the pulp and paper industries in Canada for a while to come. Nature has furnished us with enormous water-powers, and we suppose the people of the United States,—at least those directly engaged in these industries—now recognize that Canada holds the key of the position as regards the possession of raw materials.

But granting all this there is the greater question of conserving our forests for their influence on the flow of streams; the maintenance of water-powers, the prevention of soil denudation, etc., which the people of Canada

should consider, and that problem is graver than even the fate of the pulp and paper mills, important though these industries are. A generation of men, with their passing material interests, soon dies, but a nation should live for ages, and can the Canadian nation, seeing the crisis to which a carnival of waste of forest products has brought the American nation, remain blind to this picture of staggering folly? A wider patriotism must pause to consider whether the interests of America are wisely studied—even if Canadians could detach themselves from the consideration of their own patrimony—when they consent to an arrangement which concentrates the process of desolation on the northern half of the continent after it has eaten up so much of the vitality of the southern half. It is the prerogative and duty of statesmen to see this national aspect of the question, and those concerned with the pulp and paper industries should have to submit to the restrictions involved in a national policy.

The leader of the opposition in the Canadian Parliament has moved for and obtained a royal commission, which should have been created last year, to investigate the whole wide subject of the conservation of our natural resources, such as the forests, minerals, fisheries, etc., and already the Dominion Government has sent three able cabinet ministers to Washington to confer with commissioners of the United States Government on the question of a continental forestry policy. Certainly the leaders of thought among our neighbors are showing an intelligent and intense earnestness in this matter, and it should not be beyond the capacity of these commissioners to devise a policy which shall re-

sult in the recovery of what is so perilously near being lost, and yet without dragging Canada into the same evil case.



Preparations are going on apace for the conference on the conservation of the continent's natural resources to be held in Washington on the 18th of this month and Canada's share in the deliberations is likely to be a large one, in keeping with the position of a nation with such enormous resources in a largely undeveloped state. But it seems to have caused surprise in the United States that our government has done so much investigation as to the character and extent of these resources already. Great quantities of data and many splendid detailed maps have been sent to Washington and altogether the earnestness with which Canada is accepting the graceful invitation of the President has created a highly favorable impression.



The head of a large paper company in the United States, in the course of a communication to the "Pulp and Paper Magazine" says:—"Canadians should certainly realize (and possibly now do so) the great position of power which Canada holds in her possession of the raw material for paper. When a broader market for finished paper is accessible to her she will play a large part in the world's competition in this line." This is a moderate statement of the prospect, but the forecast will not be fulfilled unless measures are taken to stop the terrible destruction of forests now

going on by fire, by wasteful methods and by the other drains on the timber supplies.



The preferential tariff that is already adopted by the Australian Commonwealth, and the South African colonies, and is likely to be extended in due course throughout the whole circle of British Colonies, is likely to prove of far-reaching influence in developing the nascent industries as well as the agricultural and commercial interests of the various colonies. Such developments will also reflect favorably on the manufactures of the Mother Country, even if free trade continues to rule. A number of Canadian manufacturing firms are extending their works in order to provide for trade which has recently been diverted from United States and foreign firms owing to the fact that under the new tariffs the advantage in price lies now with Canadian manufacturers. The paper trade furnishes another illustration of the advantage of being within the circle forming the Anglo-Saxon Zollverein. The Laurentide Paper Company has been able to take a contract for the supply of news print to the amount of 300 tons a week for South Africa. This contract was for several years filled by a Scandinavian firm, but has now been transferred to Canada owing to the advantage which our manufacturers now enjoy under the mutual preference between these colonies. This is important not alone for the trade which our native industries are now getting, but for its effect on the future development of our manufacturers, since those in such lines as the pulp and paper and wood working industries in other countries will now

find it distinctly to their advantage to locate in Canada in order to hold the trade of the growing British colonies. In fact a number of United States firms are now looking for locations in Canada as a better base for developing this export trade.



GERMAN PAPER TRADE IN 1908.

The strenuous efforts made by German paper manufacturers to increase foreign trade brought the quantity exported during the first ten months of 1908 to about 302,000 tons, as compared with 280,000 tons for the corresponding period of 1907. This higher quantity was reached, it is estimated, at a lower rate of profit than in the previous year. The average dividend of twenty-four large paper mills whose business year terminated on June 30th last represented 8.8 per cent., against 9.8 per cent. for the year 1906-7. One discouraging feature is that the number of applicants per hundred open situations was in September 224, against 114 a year before. Since July last the amount of new investments in German paper manufacturing has been less than half of the like period of 1907.



PAPER-MAKING MATERIALS.

Circular 41, entitled "Paper-Making Materials and Their Conservation," by F. P. Veitch, chief of the Leather and Paper Laboratory of the Bureau of Chemistry, U.S. Dept. of Agriculture, has been issued to meet a demand for general information as to the suitability of various products, most of which are not now employed for paper stock, and also to suggest ways of maintaining sufficient quantities of paper-making materials in the future. It has been established that numerous materials, while technically suitable for paper-making, cannot be so employed for economic reasons, but by

a rational and conservative use of the materials now employed, the problem of a sufficient supply of paper stock can be much simplified. For this reason suggestions based largely on the work of the Bureau of Chemistry are here made, which, if followed, it is believed would result in greater economy in the use of raw materials as well as in lower cost, and better service to the consumer without material reduction in total values. It should be distinctly understood that the figures on the waste materials are only estimates.

The woods from which the greater part of the paper produced in the country is made are becoming scarcer, and are obtained at greater cost each year. This fact has occasioned some concern to the paper industry in the past few years, so that manufacturers and investigators have turned their attention towards other agricultural products, many of which have been shown to be perfectly suited for paper-making as far as the quality of the product is concerned. All kinds of wild and cultivated plants, which are available in large quantities, as well as all kinds of fibrous wastes, have been used either experimentally or on a manufacturing scale for paper-making. These facts are well known to paper-makers who have themselves experimented on a mill scale.

Practically all fibrous vegetable materials will make paper, the quality being governed by the percentage of fibre sufficiently resistant to stand the action of the chemicals necessary to reduce to a working condition the most resistant fibres, while the quality of the paper which these materials will make is determined by the length, strength and felting qualities of the fibres, and the chemical nature of the cellulose which they contain; the longer and stronger the fibres, and the purer the cellulose (the more closely it corresponds to normal cellulose), the better the paper, the longer it will last, the more wear it will stand, and the less it will discolor with time or use.

The materials which may be used in paper-making can be roughly divided into four groups:

(1) Seed hairs, of which cotton is the only representative.

(2) Bast fibres, such as flax, jute, hemp, ramie, China grass, sun hemp, common nettle, paper mulberry, and the fibres obtained from the fibrovascular bundles of plants, such as manilla and New Zealand flax.

(3) The whole stems and the leaves of straws and grasses, such as esparto (leaves only), corn, sugar cane, bamboo, other wild and cultivated grasses, cotton stalks, and materials of like nature.

(4) The various kinds of wood, those most used being spruce, hemlock, poplar, and cotton wood.

Most of the materials of the first three classes are used in paper-making in the form of wastes from other industries; those of the first two classes as scutching-mill and rag wastes of the textile industries, while those of the third class are used in the form of wastes from the agricultural industries. Esparto, bamboo and paper mulberry are not wasted from other industries, but are gathered primarily for paper-making. The use of materials in the form of waste is not due to particular difficulties in separation or handling, nor to the unsuitability of the original material, but solely to the fact that these materials in their original form command a higher price for other purposes than for paper-making. Indeed all of these materials will make paper of greater strength, durability and value before going through other manufacturing processes, or when used in the form of worn and soiled rags. For example, new cotton fibre as baled cotton, or that known as "linters," which is removed from the ginned cotton seed as a preliminary step in the cotton oil industry, is perfectly suited for the manufacture of high grade paper, but the demand at the price that must be asked does not justify the use of this material for paper-making. Similar conditions exist

as to the materials of the second class, which command from 3 to 20 cents per pound for the manufacture of cloth, bagging, ropes and cordage.

The materials of the first two classes, because of the length, strength and felting qualities of their fibre and the resistance to chemicals and to decay of the cellulose they contain, can be made into papers of the highest quality, and each material gives certain characteristics and individuality to the paper made from it. It is customary to consider the first two classes together.

The materials of the third class belong chiefly to the class of compound celluloses known as pecto and ligno celluloses, and are distinguished from the paper-making point of view not only by the presence of celluloses of different chemical composition and lower felting qualities, but also by a larger content of non-fibrous cellulose which, although it has some desirable qualities even when present in large quantities, as in bagasse or cornstalks, produces parchment-like effects in the papers made from them. A further technical objection to these materials is that the chemical treatment required to reduce the fibre properly is too severe for the non-fibrous cellulose, which is overcooked and partly dissolved, resulting in low yields of weak paper. Esparto, of which only the leaves are used, is an exception to these general statements, and yields a larger percentage of a strong, uniform fibre than the other members of this group.

Because of the exhaustion of the supplies of spruce and poplar within a reasonable distance of the mills, large quantities of other kinds of wood have been used for many years, not only for making board, bogus manila and wrapping papers, but also for white papers, such as are used for news, book and low grade writing paper. Thus in 1907, 576,154 cords of hemlock, 78,583 cords of various kinds of pine, 43,884 cords of balsam, 66,084 cords of cottonwood, and 125,162 cords of other kinds of wood

were used for making paper, the larger part being chemically treated. Among the pines, white, gray, loblolly and long leaf yellow pines are being used, while among the miscellaneous woods employed are red and white fir, larch, aspen, gum, cypress, beech, birch, maple, basswood, buckeye and chestnut; other woods which are available in large quantities are being constantly experimented with at various mills. Indeed, practically all woods may be used for paper-making, such use being governed chiefly by the character of the wood supply near the mill.

The reasons that have made wood the cheapest and preferred paper-making material are clearly evident. They are low cost of raw material; ease of transportation and handling, particularly by machinery; freedom from dirt; uniform supply and low digester requirements, as much more wood can be placed in a given digester than any other material. Further than this, mills could be built and operated close to the material. But the spruce and poplar forests contiguous to many of these mills are gone, and they can no longer obtain their wood at the old price nor at a price that will enable them to compete with mills more recently built, which are still close to a wood supply. Neither can such mills, built to use wood advantageously, use other materials in competition with mills especially built and equipped for using those materials. The demand developed in the past few years and constantly growing is not primarily so much for new materials as it is a demand for wood at a price that will enable the poorly situated mills to compete with those more economically located with respect to this supply. This demand can only be met either by a large use of other woods or by planting and growing spruce and poplar.

The percentage yield of pulp and paper varies with different materials, and that from a given material varies with the severity of treatment to which it is subjected and the kind of paper

made—the better the quality of paper the lower the yield. The yields usually obtained from the more commonly used materials are as follows:—

	Per Cent. of Paper Obtained
Rags	70-80
Esparto	40-45
Straw	40-50
Wood, sulphite	40-50
Wood, soda,	40-50
Waste fibres, paper, bagging, scutching waste ..	75-90
Bamboo	40
Jute	50

Besides a proper and conservative utilization of wood, the demand for paper stock may be filled by a more extensive use of other well known and thoroughly developed materials. The use of these is controlled by the total cost of manufacturing from the cheapest substance an acceptable paper. As has been said, wood is the cheapest paper-making material now obtainable in large quantities. Therefore competing materials must produce paper at as low a cost at the point of consumption as wood does. The local use of other materials is feasible in sections which are distant from mills making paper from wood, as in the Mississippi Valley and in the coast regions of the Southern States, where the total cost of the papers now used is increased by the cost of transportation from distant points. In the never-ceasing search for materials many previously exploited substances are rediscovered from time to time and more or less transient interest taken in them. These materials belong, almost without exception, to the third class mentioned above, and rarely possess sufficient merit to compete with those which have been employed regularly for many years, and which experience has demonstrated are the cheapest and best suited to the purpose.

Paper-making on an industrial scale is governed by the supply of raw ma-

terial, the quality of paper it will make and the total cost of manufacturing it into paper. In valuing a material, therefore, it is as necessary to know how much there is of it and how steadily this supply will be maintained as it is to determine the quality and quantity of fibre it yields, the cost of gathering, transporting and converting into paper, and whether it can compete economically with other materials used in making the same grade of paper.

In forming an opinion as to whether there is a sufficient supply of the material to justify its use, the fact must be borne in mind, particularly if a mill is to be built, that it is not a question of a temporary supply, but of a continued supply, that there should be enough available to meet all requirements for a number of years. Estimates on these points can only be formed after careful consideration and examination of the source of the material, taking into consideration whether it is naturally grown or cultivated, whether it is an industrial or agricultural waste, and whether it can be obtained in a satisfactory condition as to cleanliness. The value of the material for other purposes must also be considered; if this is greater than the paper-making value it is useless to consider the subject further.

The last factor in valuing a material is the total cost of making paper from it, and this is obtained by adding to the cost of making the expense of gathering and transporting the material to the mill. The yield per given area, cost of harvesting, difficulty of handling, relative bulk of the material and cost of transportation must all be considered. Whether the waste is one which is always harvested, as are straw and sugar cane, or is usually left ungathered, as are cotton stalks, is a point which also affects the cost.

The relative expense of making paper from different materials cannot be discussed in detail. It may be said, however, that the cost of chemicals per ton of paper is greater, as a rule, for wood

than for other materials, and the time of cooking is longer. On the other hand, wood is cleaner, more can be placed in the digester, and the pulp requires less beating than longer and stronger fibres. What difference there is in the cost of mill treatment of the various materials, provided they pass through all the chemical processes and are used in the same grade of papers, is probably in favor of wood.

With the present methods of removing bark, rotten wood and knots, the utilization of mill wastes for making any but low grade colored papers or boards seems impracticable. If all suitable material is used, as it should be, for making laths and other small articles, the waste from a mill would be too small both in size and quantity to be profitably handled as a paper material. There are, however, large quantities of wood left in the forest which is of sufficient size to be used advantageously by the methods now in vogue. While it is impossible to give an accurate estimate of the material thus available, it is probably safe to say that fully 25 per cent. of the tree which has been cut for lumber is still available for paper-making, and, when properly graded, offers no particular difficulty in treatment at the mill. On this basis fully 12,000,000 cords are available annually as waste from the lumber industry, and, furthermore, it is obtainable in large quantities over small areas, and, being a waste of the lumber industry, can doubtless be obtained at a lower cost than wood direct from the stump.

Straws and other grasses contain compound celluloses which exist both in the form of fibre and of non-fibrous cellular material, and yield from 30 to 50 per cent. of white paper. These substances are likely to contain much dirt, collected from the ground, which is difficult to remove. If any remains, it increases the cost of treatment and mars the quality of the paper. Cereal straws were generally employed for the cheaper papers before wood was used, and even

now are used extensively for making papers and board. As has been said, the cost of making a good quality of paper from these materials, except possibly under exceptional conditions, is greater than from wood, but they are suitable for making cheap wrapping papers and boards when the proximity of the mills to the raw material and increased yield compensate for somewhat greater original cost of raw material or greater cost of treatment.

In the Northern Central States, chiefly in Michigan, Minnesota, and in the Dakotas, about 3,000,000 acres of flax are grown annually, practically all for the seed, while the straw is allowed to rot or is burned in the fields. One ton of this straw will yield about 400 pounds of fibre—that is, at the rate of 1 ton of straw per acre, 600,000 tons of fibre suitable for making 480,000 tons of strong, high quality paper. Small quantities of straw are now being delivered to the tow mills at from \$2.50 to \$3 per ton, and doubtless practically all of it can be secured at \$5 or \$6 per ton. As the fibre is one of the best paper-making materials, it is, even at the highest mentioned price, a cheaper raw material for strong wrapping paper than old manila and hemp rope, and if it can be obtained free of the seed, which when present produce grease spots in the paper, the fibre will command even a higher price for fine white paper. Commercially, the presence of seed has been a difficulty in the utilization of the fibre for fine papers.

Other materials which have become prominent enough to receive mention are cotton and tobacco stalks, agricultural wastes occurring in large quantities in the Southern States. Low grade tissue and common wrapping paper have been made from these sources. The fibre from these materials is from 0.4 to $3\frac{1}{4}$ mm. long, averaging $1\frac{1}{4}$ mm., while the yield of paper is approximately 40 per cent. Owing to the fact that the yields of these materials per acre is small, that they are widely distributed

over large areas, and that the former is never brought together in harvesting the cotton crop, the cost of gathering and transporting them to the mills would probably be greater than for many other materials, such as the cereal straws, forest wastes, or flax straw, though at the same price per ton the raw material for a ton of paper costs approximately the same for all of these wastes.



FORESTRY CONVENTION.

A special meeting of the Canadian Forestry Association will be held in the Convocation Hall of Toronto University, Toronto, on the 11th and 12th of February. Two sessions will be held each day, beginning at 10 a.m., and 2 p.m., respectively. The Governor-General has kindly consented to be present and to open the meeting. His Honor J. M. Gibson, Lieutenant-Governor of Ontario, will also take part in the discussions.

Up to the present time, the following gentlemen have consented to read papers:—Dr. B. E. Fernow, Dean of the Faculty of Forestry in the University of Toronto, "The Forest Conditions of Canada." Aubrey White, Deputy-Minister of Lands and Forests, Toronto, Ont., "The Timber Resources of Ontario." F. C. Whitman, Annapolis Royal, N.S., "Forest Conditions in Nova Scotia." Abraham Knechtel, Inspector Dominion Forest and Game Reserves, Ottawa, Ont., "The Dominion Forest Reserves." Carl Riordon, General Manager of the Riordon Paper Mills Company, "The Interest of the Paper Manufacturers in Conservative Forestry." Ellwood Wilson, Forester for the Laurentide Paper Company, Grand Mere, P.Q. Dr. C. D. Howe, Lecturer in Forestry, University of Toronto, "Forest Management on the Biltmore Estate, North Carolina." E. J. Zavitz, Lecturer in Forestry, Ontario Agricultural College, Guelph, "Waste Land Planting." On the evening of the 11th, a banquet will be held under the auspices of the Toronto Board of Trade.

CANADIAN MARKETS.

The thaws and rains which have been pretty general over Eastern Canada and parts of the United States for the past fortnight, have altered the whole situation in the pulp markets. Mills that had no stocks of pulp to help them out had been working on from hand to mouth and were not making contracts beyond the 15th April, when the results of the usual spring thaws would be felt in the trade. Meantime pulp makers were holding out for the high prices which seemed inevitable till then, and \$25 and in some sections even \$30 was being asked for car lots. The siege has been suddenly raised by the soft weather, and now it appears evident that even if there should be a tight freeze up in the rivers there will be plenty of water for grinding till spring. It is the opinion of one experienced manufacturer interviewed by our representative that there is hardly a possibility of low water before July, as weather such as this is likely to be followed by a wet spring.

The markets at the moment of writing are in such a state of dissolution that it is hardly possible to quote a price that will represent a settled basis for trading, but it may be mentioned as a sample that one mill which is still asking \$25 for car lots of ground wood pulp is contracting for a supply for the year at \$18, which is perhaps near the figure that will be quoted next month. One manufacturer thinks the market will settle down at \$1 to \$2 more than last year, but some sales are still being made for present delivery at \$20 to \$22.

In sulphite quotations are \$1.80 to \$1.90 at the point of shipment in Canada. Prices in this class of pulp are kept down by the continued glut in the Scandinavian market where the overproduction that has followed on too much mill building is still being felt, and is reflected even in the United States.

PULP AND PAPER NEWS

A good deal of pulpwood is being sent from St. George, N.B., over the border.

* * *

Walton, Limited, Montreal; capital, \$10,000, has been granted a charter to build and operate pulp and paper mills and carry on a pulp and lumber business. C. Cathay Walton, Montreal, is interested.

* * *

The Bay Shore Lumber Company, of St. Martin's, N.B., expects to resume about the 20th inst., the exportation of pulpwood from that place and Great Salmon River to Maine, by means of barges and tugboats.

* * *

There are further rumors in St. John that the Gibson Company timber limits in northern New Brunswick, comprising between 100 and 200 square miles of well timbered country are being sold to a United States company.

* * *

The Roneo Company, Limited, Toronto, has been incorporated with a capital of \$25,000 to import, deal in, and manufacture paper, also office specialties, etc. Geo. McPhail Clark, and Gordon Russell, Traders' Bank Building, Toronto, are among the provisional directors.

* * *

The McLeod Pulp & Paper Mills, Milton, N.S., have now begun the manufacture of box boards under the superintendence of R. Livermore. The pulp mills are turning out some 80 tons of pulp per day. It is the intention to start making news print shortly.

* * *

The Rudd Paper Box Company, Limited, Toronto, capital \$60,000, has been incorporated to manufacture and deal in paper, box board, paper boxes, bags, envelopes and paper products of all kinds, and to take over the business now carried on in Toronto by A. E. Rudd, T. Huyck, and Helen Butler.

As the result of a fire which broke out in the Hampel Paper Box Company's works at Brantford, the machinery was badly damaged and the stock destroyed. The fire started in the lower floor, which was nearly gutted. The upper stories did not suffer so much. Loss \$10,000, covered by insurance.

* * *

Labrador Pulp & Lumber Company, Limited, Montreal, has been incorporated with a capital stock of \$1,500,000, with power to build and operate saw and planing mills, manufacture and deal in pulp, pulpwood, paper and paper boxes, etc. Ernest Hutcheson and J. A. T. Richards, of Montreal, are interested.

* * *

W. S. Hodge, of the firm of Spalding & Hodge, Limited, paper dealers, Drury House, London, gave the "Pulp and Paper Magazine" a call this month. This firm now has a Canadian branch at 472 St. Catherine Street West, Montreal, and Mr. Hodge reports an increasing trade in coated writing and printing papers which are his firm's specialties.

* * *

We hear of further negotiations being opened up by United States firms associated with the pulp and paper trades for the purchase of timber limits in Quebec, Northern Ontario, and on the Pacific Coast, as well as in New Brunswick, these deals being made to protect themselves from a famine in wood if there should be a restriction in the freedom of exports from Canada.

* * *

The directors of the Laurentide Paper Company have declared a dividend of 3½ per cent. on the common stock for the half year ended December 31st, payable February 5th, to shareholders of record on January 30th. All the old officers have been re-elected. There is a rumor in Montreal that Lord Northcliffe has made considerable purchases of this company's stock. The stock recently went as high as 112.

Harry Harding, Musquash, N.B., was drowned while trying to save a mill dam at the Inglewood Pulp & Paper Company's works. The water pressure on the gate became so great as to cause fear of its bursting through. Harding bravely walked out along a narrow plank to the dam, and was carried over the dam and drowned. Deceased was 31 years of age and greatly respected.

* * *

Northumberland, (N.B.), county council has passed the following resolution unanimously; to request the Pro-

vincial Government to use all its constitutional powers to prohibit or restrict the export of raw lumber for maintenance of foreign pulp industries. That the union of municipalities be requested to memorialize both provincial and Dominion Governments to take such measures as are within their respective powers to restrict or prohibit the export of pulp wood from the Province. That this resolution be forwarded to the secretary of the union of municipalities, and to the Provincial and Dominion ministers and county members.



NEWS OF THE MILLS

The Dominion Pulp Company's mill at Chatham, N.B., is running without intermission.

* * *

Price vs. the Chicoutimi Pulp Company is one of the cases up for judgment before the Imperial Privy Council.

* * *

The Miramichi Pulp & Paper Company, Chatham, N.B., are reopening their pulp mill. About 60 tons per day is the output.

* * *

An order of court has been granted winding up the business of the Ottawa Pulp and Paper Company. The company has a capital of \$50,000.

* * *

The Lincoln Paper Company is now engaged in making extensive alterations in the Lybster Mill, and will begin operations there with a large number of hands as soon as it is ready, probably in early summer.

* * *

E. R. C. Clarkson, Toronto, curator of the Imperial Paper Mills, of Canada, of Sturgeon Falls, has been authorized by Justice Mulock to borrow \$15,000 for the payment of taxes and other charges, and \$2,480.39 for insurance.

* * *

Joseph Sibley died at the hospital in Cornwall, Ont., on the 3rd inst., as the

result of inhaling sulphur fumes in the digester room of the Toronto Paper Company's mill, after the digester had been emptied. Mr. Sibley was an Englishman, 33 years old, and left a wife and four children. His remaining in the room after the digesters were emptied was contrary to orders.

* * *

The New Brunswick Pulp and Paper Company, Limited; Springfield Mills, Millerton, N.B., have made arrangements to open an office in Toronto at 23 Scott Street, which will be under the management of R. B. Ritchie. They have also an office at 59 St. Peter Street, Montreal, which will be in charge of E. H. Wilkinson. Arrangements have been made for carrying a stock of kraft papers in standard sizes and weights at both places. The progress of this company in its Kraft Brown enterprise will be watched with special interest. The first batch of paper was turned out this month.

* * *

Work on the new Thorold Pulp Mill is rapidly progressing, and a few more weeks will see the completion of the building which is now being erected. The building lies a little to the southwest of the town, and is in a most advantageous position on the site of the old Thorold fair grounds. A large expanse

of ground belonging to the company lies on the west of the mill, and will allow of large extensions when required. The building now under erection is a frame structure built upon a concrete base, measuring about 60 x 30 feet, and has a span roof, the height in the centre being about 30 feet. A large well, eight feet square, is being placed, and a tunnel is to be bored through to the old canal, which is about 100 feet to the north.

* * *

The annual meeting of the Canada Coating Mills, Limited, was held at the mill in Georgetown, on Friday, the 22nd ult. The report presented to the shareholders was a very satisfactory one, showing a steady increase over the past year, and the best year in the history of the company. The officers of the company were re-elected as follows:—President, Robert Kilgour; vice-president, John R. Barber; secretary-treasurer and manager, A. M. Huestis; superintendent, I. E. Fleck. Directors, Robert Kilgour, John R. Barber, R. S. Waldie, H. P. Lawson, A. M. Huestis. The company have opened a city office at room 103 Mail Building, Toronto, Tel. Main 5113, where Mr. Huestis will be found on Mondays, Wednesdays, and the end of the week.



Water conditions at the Chaudiere, Ottawa, have improved, both at the Eddy Company's mills and those of J. R. Booth. Mr. Booth's new board mill is nearly ready for operations. A board machine from the Black Clawson Company is being installed. This mill will supply the paper box trade.

—In a recent number of "Punch" there was a charming fairy tale entitled, "The Fir Tree; Revised Version (Too long after Hans Andersen)." The ambition of the spruce tree is to become a mast for some noble vessel, but this was not realized, for when it was cut down it was reduced to pulp, and made into paper for an ephemeral halfpenny newspaper, and ultimately was used to light a fire.

AMERICAN PAPER AND PULP ASSOCIATION.

(From Our Special Correspondent).

New York, February 4th, 1909.

The convention held at the Waldorf Astoria to-day showed from its very beginning the beneficial effects of recent changes in the make-up and real purposes of the American Paper and Pulp Association. From being a promiscuous gathering of people more or less interested in the pulp and paper trades, coming together every year for a good social time, it has become a serious-minded parliament of business men representing those trades talking over the problems and trying to solve the difficulties which are always bound to arise, even in enterprises less complicated than those of the manufacture of pulp and paper. As a result of this policy, which leading men of the Association came to the conclusion was the only proper one under the circumstances, only those who are absolutely engaged in the industry can belong to the Association and take part in the proceedings at the convention. Judging by what one hears around the corridors of the hotel, the new arrangements have fully justified themselves.

The meeting came to order shortly after 11 o'clock this morning, with A. C. Hastings, the President, in the chair; Louis Chable, the popular secretary of the Association, read the minutes, which, on motion, were approved.

As was to be expected, the President's annual address, in so far as it referred to the history of the past year, had to speak of several little unpleasantnesses. It was a panic year, or rather one of stagnation following on the panic of 1907; and what made matters worse, a decreased demand for the manufacturers' product was allied with increased cost of production and with labor troubles. Then came the low water. These setbacks not being deemed sufficient, the paper industry became the victim of a special investigation, instigated by an

Association of Publishers, who, as President Hastings pertinently intimated, are themselves the greatest trust in the country.

"This same combination of publishing interests, through a selfish desire to get their paper at less than cost," he added, "has used every power at its disposal to have the tariff taken off our product, which would mean in many instances, untold harm to the members of this Association.

"The average man believes that we are an awful octopus, destroying the forests, drinking up the rivers, starving our employees, and not least of it all, overcharging the broadminded, kind gentlemen who furnish us the news of the world. It seems to me the only thing we should be ashamed of is that we allow them to make so many assertions without making them prove them, if they can; if not, to retract them. "Many a big glass house has stood because people were afraid to throw stones." I believe the manufacture of paper, in all its branches, is a legitimate, respectable business, and entitled to the same treatment at the hands of its customers as any manufacture of steel, cotton, wool or any other great industry. The attacks made on us seemed to call for some action on the part of the manufacturers, as a whole, and the most feasible way was through organized action, using this association as a medium."

In calling for a more rigid organization of the Association, under which fuller attention should be given to information re pulp and paper stocks, Mr. Hastings spoke as follows:—

"Statistics are the thermometers to gauge the industrial conditions, and no man can tell by his personal experience alone as to general conditions. It is a sad fact that, while an individual may have an idea of the yearly output and consumption of paper and pulp in different grades, it is only a guess, and on inquiry it cannot be stated with accuracy. If it could have been, it would have saved much investment that is now not bringing in any adequate return.

There is no law, legal or moral, to prevent men from trying to run their business with intelligence or with an idea of a reasonable profit on the capital invested and the energy expended. I do not recommend to this Association that they enter into agreement in any form, shape or manner as to the production of their plants, but I do believe that co-operation and knowledge of actual conditions will lead them to conduct their business in such a way that they will get better results for themselves and their stockholders."

A pleasing feature referred to was the good manner in which prices were maintained last year, through a time when there were so many inducements to cut them. It is a healthy sign of good business judgment when the mills recognize the transiency of benefits accruing from reducing prices.

The President's reference to tariff revision was not lengthy, and merely expressed a wish that a bill will be framed and passed that will properly classify the various grades of writing papers, and place the product of American mills on a fair competitive basis with the foreign article.

More extended reference to the vexed question of news print was made by Vice-President Remington, in presenting the report of that division:—

"What other industry has been compelled to testify before a select committee giving up all its details of manufacture, all its trade secrets, and laying bare to the public what it pays for raw materials of all kinds, cost of conversion into paper, etc.? Why are not the publishers also compelled to give a detailed statement of all their affairs, what they receive for advertising, their connection with the Associated Press, where they got the money to build the elegant and costly office buildings, etc.? What paper company ever became rich enough to build, or own, even a very modest office building in New York City?

The suggestion that the sizes of rolls should be standardized, in spite of the fact, I believe, that it emanated from that

bogey of the paper manufacturers, Mr. Norris, was commended. It certainly does seem absurd that one paper should use 73-inch, another 71¼-inch, others 69-inch, 67-inch, 66-inch, and so on. If certain sizes could be made standard, it would be easy to obtain a higher price for others.

By the tenor of certain talk by members, and by resolutions passed at the convention, the paper manufacturers showed that while they were desirous to come to a thorough understanding and friendly feeling with the Newspaper Publishers' Association, yet they deprecate the "vilifying, mendacious methods" used by the present chairman of the Paper Committee of Publishers' Association.

Louis Chable, the Secretary, in a very able and interesting address, mentioned the admission of the Publishers' Association, that in the year 1908, the newspapers had made voluntary savings in paper to the extent of \$1,000,000 in New York and Chicago alone. This economizing, if carried out in the same proportion all over the country, would mean 200 tons of paper per day, or over \$3,000,000 per year. He rubbed it in to the paper manufacturers for not sooner "taking stock." They had been engaged far too long in carrying on their industry carelessly, by guess work, believing that "to-morrow would be like yesterday, the wood supply endless, strikes would not come, no periods of low water." A very careful computation of the chances of what is before them, is needed to-day.

As to the election of officers, the chief executives being now of a permanent character, it resulted in the reappointment of Arthur C. Hastings as President, and Louis Chable, Secretary.



PULP AND PAPER MARKET IN THE EASTERN STATES.

Our special correspondent in New York, writing on the 6th inst., states that there is but little improvement in the outlook for ground wood. The low

water has rendered it impossible to get logs or to grind pulp, and there is no doubt that the mills have suffered at least as badly from this cause, as have those on this side of the border. Under these circumstances it is not surprising that quotations for ground wood should reach the high level of \$25 or \$26 per ton, and that in isolated cases as high as \$32 has been paid. A striking feature of the last few weeks has been the importation of mechanical pulp into the United States from Norway, Sweden and Finland. It is calculated that at least 15,000 tons have come in since the beginning of the year. However, it is not believed by the trade that these importations will assume very much larger proportions, for the reason that the European countries have themselves suffered from low water and drought, grinding having nearly stopped in many localities during December and January. The effect of these conditions upon the paper market is and will be watched with keen interest. The trade finds it difficult to conceive the possibility of news print not going higher, provided there is no unforeseen great set-back in general business. Already there is a semi-famine, in spite of several of the large newspapers having cut down the size or number of pages of their Sunday editions. This all helps, but after all will not go very far, with the increasing demand and the difficulty of grinding. Speaking of importations, a more than usually large quantity of soda pulp has come in lately from Europe, a result, no doubt, of the distinctly lower prices which have prevailed for this commodity, particularly the lower grades. Some believe this movement will grow.



MR. BARBER SUGGESTS A PULP AND PULPWOOD POLICY.

On his way to New York to meet the American paper and pulp men at their annual gathering, John R. Barber, of the Georgetown Paper Mills, was met by a representative of the "Pulp and Paper Magazine," and was asked to give his

views on the pulp and pulpwood policy of Canada.

Mr. Barber said he was one of those who did not believe that the prohibition of the export of Canadian pulpwood would be advisable unless the United States Government refused to make a fair deal with Canada. He did not think such a refusal should be anticipated now, seeing that the pulp and paper interests there frankly admitted that Canada held the key of the situation in the control of the supply of raw material.

What Mr. Barber would recommend, and what he believed would meet the requirements of the great majority of the pulp and paper manufacturers of the United States with the least disorganization of the industry on both sides, is an agreement whereby the United States would admit Canadian pulp free of duty, in return for an agreement on our part not to prohibit nor put any export duty on wood for pulp making.

To make such an agreement of value to Canadian manufacturers and acceptable to American interests, Canada and the United States should require to have a common policy as regards the outside world. The present duty on bleached sulphite pulp coming into the United States is \$5 a ton, on unbleached two-thirds of that and on ground wood, one-third of \$5.

The Canadian duty is 25 per cent. ad valorem and on high grade pulps the only kind we import—it works to the serious disadvantage of the Canadian paper maker. The Canadian mill buys at say \$2.80 in Boston in bond. He pays 70c. duty and 20c. per 100 freight to his mill. The United States fine paper mill pays 25c. duty and an average freight of 15c., making the cost at his mill \$3.20 as against \$3.70, which the Canadian mill would have to pay. The English paper mill gets the same pulp at \$2.65 ex dock which, with the freight of 15c., makes the cost \$2.80 to the British manufacturer, \$3.20 to the United States manufacturer, but \$3.70 to the Canadian manufacturer. The English paper manufacturer is favored with cheap capital, cheap coal and cheap labor, and is thus

under our present tariff permitted to bring paper into Canada paying only 15 per cent. on the manufactured goods while the Canadian manufacturer has to pay 25 per cent. on the raw material. Therefore to benefit the Canadian and the United States paper manufacturer without injury to the pulp producer in either country Canada should adopt the American specific duty as against all the world excepting the United States, conditional, of course, upon the United States taking the duty off Canadian made pulp.

The Dominion Government at present neither levies an export duty on pulpwood nor prohibits its exportation. Of course it must always be borne in mind that the Provincial Governments have the right to sell the products of their Crown Lands under any conditions which they think it wise to impose, but Mr. Barber feels satisfied that they would confer with the Federal Government and unite on a policy that would insure the condition for a settled national policy in this question.

Such an agreement would relieve United States manufacturers of the fear of their trade being thrown out of joint by restrictive or prohibitive legislation in Canada, and it would lead to an extensive and natural development of both the pulp and paper industries in Canada where all the other conditions favor such development.



NATIONAL PAPER TRADE ASSOCIATION.

The meeting of the above Association took place simultaneously with that of the American Paper and Pulp Association at the Waldorf-Astoria, N.Y. President McQuillen was in the chair. The meeting gave considerable attention to the present vexed question of watermarks, and to the utter lack of regulation regarding them. The election of officers resulted as follows:—President, W. F. McQuillen; First Vice-President, E. U. Kimbark; Second Vice-President, J. Leslie; Secretary, T. F. Smith; Treasurer, E. E. Wright.

A LABORATORY FOR PUBLIC SERVICE.

In the recent issue of "The Technology Review," Arthur D. Little, of Boston, himself eminent as a chemical expert, presents with remarkable clearness the value to the country of the new Research Laboratory of Applied Chemistry at the Massachusetts Institute of Technology. He shows that "although the resources of a country form the basis of its prosperity, this is, nevertheless, determined in the long run by the manner in which these resources are utilized, or, in other words, by the industrial efficiency of the means and methods of production. We have developed great transportation systems, we handle raw material on a titanic scale, we have applied machinery to the addressing of our letters and the sticking of the stamps, but it remains true none the less that with a few conspicuous exceptions our manufacturing operations are carried forward in trustful ignorance and disregard of many of the factors upon which real industrial efficiency depends. This is shown in the stupendous waste which accompanies the first crude preparation of the raw material; it is shown in the general absence of a true selective economy in the apportionment of that raw material among the different industries, and it is shown again, and yet again, in the losses which attend nearly every step in the progress of the raw material toward the finished product. One need only refer to the wastes which attend lumbering, or the growing of flax for seed, the making of coke on bee-hive ovens, and the failure to utilize the casein of skim milk as a high-grade food product, to realize vaguely something of what these initial losses are. The absence of proper selective economy in the adaptation of raw material to use is everywhere, as when our railroads use untreated ties and poles, when coal-tar is burned as fuel, crystal alum used for purifying water, or valuable publications printed on ground-wood papers. We are

still polluting our streams with wool grease, still wondering whether we can make alcohol from waste molasses, still buying coal without reference to heating power, and paying 65 cents a gallon for cylinder oil.

"When wastes so obvious and so easily remedied are everywhere taking heavy toll of our manufacturers, it is not surprising that in all lines of productive effort subtle and elusive problems present themselves and still further lower our industrial efficiency. Steel rails break by thousands, trolley wires snap, boilers corrode, milk cans rust, unsightly bloom appears on leather, cloth is stained or tendered, paints fail to protect the metal underneath. In a large proportion of cases those who are confronted by the problem have neither the time, the training, nor the equipment required for its solution and yet such problems and thousands of others far more complex upon their face must be solved if our industrial efficiency is to be brought to its proper level.

"No one at all conversant with the facts can doubt that our industrial salvation must be found in a closer alliance and co-operation between the scientific worker and the actual agencies of production. Such co-operation exists, as we are all beginning to learn, in Germany, and its results are evident throughout the world in the tremendous expansion of German industry. In our own country no agency has done more to supply the little leaven which may yet leaven the whole industrial lump than the Massachusetts Institute of Technology, and her graduates, by hundreds, are doing yeoman service in the development of our resources, and the application of the scientific method to our practice. So far this is altogether as it should be, but in the present condition of our manufacturers it is by no means enough. The time has come to bring the splendid scientific organization and equipment of the Institute to bear directly upon our industrial problems as an aggressive force working for their solution.

"Since all material is subject to chemical laws and its properties and behavior influenced or determined by these laws, it follows that a large number, probably by far the greater number, of our industrial problems are problems in applied chemistry. No better field for the initiation of work intended to be directly effective in its bearing upon industrial efficiency could therefore have been chosen by the Institute authorities than that of research in applied chemistry upon some basis which renders the results obtained immediately available to those responsible for the conduct of industrial affairs."



PULP vs. LUMBER.

The extent to which the lumber industry is already declining in Canada is becoming more and more noteworthy every day. A power house is now in course of erection at the Chaudiere on the site of J. R. Booth's first sawmill, erected half a century ago.

Mr. Booth is the builder of the new structure, its purpose being to house a plant for the generation of electric energy to drive a new box board mill which is soon to start operations.

The present enterprise is interesting as an indication of the gradual growth of the paper making industry in the Ottawa Valley at the expense of the lumber manufacturing. Eight or ten years ago Mr. Booth launched into pulp grinding and has since erected mills for producing news print, sulphite, and box board.

The output of Booth's lumber industry was once in the neighborhood of 150 million feet a year, while now the production is about half that quantity. The ground which is now being levelled off for the foundation of the power plant was the site of a busy lumber mill till the big Ottawa-Hull fire cleared it off. At that time Mr. Booth was beginning to manufacture spruce into pulp instead of deal and thin boards,

so he never reconstructed that portion of his lumber factory. The space is now serving him well in his large industry of pulp and paper manufacture.

Any decline in his output of lumber is more than counterbalanced by the immense trade in the manufactured articles of the spruce forests.—Quebec Telegraph.



PAPER FAMINE IN JAPAN.

So real is the danger of a paper famine in Japan that the Government has decided to adopt remedial measures, says a Canadian trade agents' report. The authorities have requested the paper mills department of the Mitsui Bishi Kaisha to take over an area of bamboo woods in the Toraku District of Formosa, covering more than 3,000 cho (7,350 acres), with a view to the conversion of the timber into paper. It is believed that, with the introduction of proper methods, these woods are capable of yielding as many as 10,000,000 bamboos a year. It has not yet been decided whether the Kaisha shall establish a paper mill in Formosa, or send the article in a partly manufactured state to Japan, but in either case it is believed that the development of this new source of the raw material for paper will be of considerable importance to the empire, and will, perhaps, overcome the necessity of looking to foreign countries in the future for its supply of raw material.



CARE OF PAPER CALENDERS.

When a competent paper expert comes into a factory where paper calendars are used he can immediately judge from their condition whether the factory administration values its machinery and whether the attendants have had the necessary schooling in their work.

A good calendar can soon be spoilt. Above all the greatest possible cleanli-

ness is needed if the lateral "breaking out" of the rollers is to be avoided. If the calender runs under pressure the rollers become heated, while at the same time the lubricating oil in the bearings become thinner and more fluid. In spite of the oil protecting rings on the roller heads it penetrates to the paper surrounding the roller, which it passes through, thus causing the lateral "breaking out" of the rollers, so that the full width of the calender cannot be utilized. The calender tender must know how to justify the confidence placed in him and is alone to blame if his machine get out of order. At every change of tour it is necessary to thoroughly cleanse the bearings and roller heads from dirt, oil and dust, and only then to begin washing the rollers. In most factories this is done with a sponge and lukewarm water. The rollers are well wiped but are not made too wet, the sponge being squeezed out in the lukewarm water, and this process repeated until the rollers are clean.

The rollers are then let run under full pressure until they are smooth as mirrors and warm, the glazing being then recommenced. If the calender is treated in this way a good gloss can always be obtained, provided that the paper to be glazed is sufficiently damp. Rollers suffer most in the glazing of card papers. If the sheets often crack it is unavoidable for the paper to wind round the rollers, the final result being that the latter become marked. When this is the case it is unadvisable to experiment in remedying the defect. Better to remove the rollers and take them to the lathe. A short stoppage of work is preferable to later claims for bad glazing. The rollers through which the paper is introduced sometimes cause the paper to pull, creases resulting. The stronger application of the break then frequently leads to tearing.

Attention should likewise be paid to the belts which drive the calenders, so that they do not collide. They should be so stitched that they can scarcely be

heard run. When they are stopped clean rags should be inserted so as to prevent any lubricating oil from reaching the paper rollers. The latter should, during any protracted stoppage, be hung on both sides with cloths to prevent dust from entering the lubricating passages.—*Wochenblatt fur Papier Industrie.*



UNITED STATES FORESTRY BUREAU'S LABORATORY.

The United States Forest Service has just decided to locate its experimental laboratory station at the University of Wisconsin, a telegram to that effect having been received from Washington by the University authorities. This new laboratory is regarded as one of the most important additions which the University has received in recent years, not only because of the advantages which will accrue to students, but because the experiments to be carried on will be of direct practical value to the paper, lumber, and railroad interests of the State. The new laboratory will be available to university students and members of the faculty for investigative work, and the members of the station staff will give lectures to students on the various phases of forestry in which work is being done in the laboratory. The University will thus have practically all the advantages of a school of forestry that will be the most thoroughly equipped in the country.

All the experimental work in forestry carried on by the United States Government east of the Rocky Mountains will be concentrated in the laboratory here. This will be the only station of its kind maintained by the United States Government with the exception of a smaller laboratory on the Pacific Coast. The character of the investigations to be undertaken makes the establishment of the station at Wisconsin of the greatest importance to the paper and lumber industries of the State. Wood pulp experiments to determine the fitness of various woods and other vegetable fibres for the

manufacture of paper will receive much attention. A miniature pulp mill, fully equipped for the manufacture of pulp by the sulphite process, together with such equipment as the lead-lined digester, a heating engine, a pulp screen, and a knuckle-joint press, will be installed.

Timber tests to determine the mechanical properties of different woods and the influence on these properties of various methods of treating and handling, will be of value to lumbermen. Testing and wood working machinery valued at over \$8,000 will constitute part of the equipment. The preservation of wood, such as railroad ties, etc., by different processes and the use of preservative fluids, is to be another important field of investigation for which complete equipment is to be provided in the form of treating cylinders, pressure and storage tanks, pumps and air compressors.



ROOSEVELT ON "THE FORESTS."

If there is any one duty which more than another we owe it to our children and our children's children to perform at once, it is to save the forests of this country, for they constitute the first and most important element in the conservation of the natural resources of the country. There are, of course, two kinds of natural resources. One is the kind which can only be used as part of a process of exhaustion; this is true of mines, natural oil and gas wells, and the like. The other, and of course ultimately by far the most important, includes the resources which can be improved in the process of wise use; the soil, the rivers and the forests come under this head. Any really civilized nation will so use all of these three great national assets that the nation will have their benefit in the future.

Just as a farmer, after all his life making his living from his farm, will, if he is an expert farmer, leave it as an

asset of increased value to his son, so we should leave our national domain to our children, increased in value and not worn out. There are small sections of our own country, in the East and in the West, in the Adirondacks, the White Mountains, and the Appalachians, and in the Rocky Mountains, where we can already see for ourselves the damage in the shape of permanent injury in the soil and the river systems which comes from reckless deforestation. It matters not whether his deforestation is due to the actual reckless cutting of timber, to the fires that inevitably follow such reckless cutting of timber, or to reckless and uncontrolled grazing, especially by the great migratory bands of sheep, the unchecked wandering of which over the country means destruction to forests and disaster to the small home makers, the settlers of limited means.

Short-sighted persons, or persons blinded to the future by desire to make money in every way out of the present, sometimes speak as if no great damage would be done by the reckless destruction of our forests. It is difficult to have patience with the arguments of lessness in the use of our splendid forests, we have already crossed the verge of a timber famine in this country, and no measures that we now take can at least for many years, undo the mischief that has already been done. But we can prevent further mischief being done; and it would be in the highest degree reprehensible to let any consideration of temporary convenience or temporary cost interfere with such action, especially as regards the national forests which the nation can now, at this very moment, control.—From the President's Message.



PHILLIPS' PAPER TRADE DIRECTORY.*

The 1908-09 edition of "Phillips' Paper Trade Directory of the World" is to

undo mischief. Through care

hand, and while the utility of previous issues has been demonstrated by their popularity, this one should be even more valuable by reason of the extensive additions and improvements to be found therein. Many important changes in the paper mills of several countries have been made; indeed so extensive are these changes, it is explained, that the old work has become practically obsolete. The present volume is published under the following titles:—"Phillips' Paper Trade Directory of the World," "Annuaire Phillips de la Papeterie Universelle," "Phillips' Adressbuch der Papier Industrie der Welt," "Anuario Phillips de la Industria del Papel del Mundo," "Phillips' Adresskalender für Världens Pappers Industri," "Phillips' Adressekalendar för Verdens Papper-industri."

The chief features may be summarized as follows:—(1) "The Paper Mills of the World," given in alphabetical and numerical order, and also arranged under their respective countries, together with a classification of the various makes of paper. (2) "Wood Pulp Mills of the World," mechanical, cellulose, sulphite, sulphate, soda, etc. (3) "Lists of Buyers of Paper, Boards, and Stationery of the World;" millboard makers, enamelers, paper stainers, paper agents, export paper shippers, paper stock merchants, wholesale stationers, and paper box and bag makers. (4) Registered watermarks of the various mills and stationers. (5) List of members of the Paper Makers' Association of Great Britain and Ireland, and other associations. Everything is done to make references quick and easy.

*"Phillips' Paper Trade Directory of the World," 1908-09, with which are incorporated "Phillips' Directory of Paper Makers' of Great Britain and Ireland," and "Phillips' Paper Trade Directory of the British Empire." Price, ten shillings and six pence: London, 47 Cannon St., E. C.; S. C. Phillips & Co.

—As has been expected in some quarters for some time past, Hon. Adelard Turgeon, Minister of Crown Lands and Forests, has resigned from the Quebec Government. He is now named as President of the Legislative Council. It is reported that his place will be taken by Hon. Rodolphe Roy, Provincial Secretary.

—Northern Engineering Works, Detroit, have recently supplied travelling cranes to Black Hills Traction Company, Deadwood; one 3-ton to the New Phoenix Foundry & Machine Company, Springfield, Mo.; one 15-ton to the city of Oswego, Oswego, N.Y.; and two 7½-ton travelling cranes to the Western New York Construction Company.

—The Province of Ontario has been relieved of all responsibility in connection with the Soo Loan Guarantee. The Canadian Improvement Company having paid in \$1,000,000, and the Morton Trust Company having given a certificate that all guaranteed certificates are cancelled and the matter closed. The guarantee of the Province was given in 1904 on a \$2,000,000 loan to the Lake Superior Corporation during the crisis of 1904. The developments of the last few days promise much for the future of the corporation and Sault Ste. Marie.

—Paper pulp has been produced from sugar cane at the mill of a Connecticut company, according to the foreman in charge there. E. J. Butt, of Houston, Texas, engaged the mill about the middle of December for experiments in making paper pulp from sugar cane. No information as to the process employed in making the pulp is given out. The foreman intimated that pulp could be beaten to a very fine state, and then made into good grades of paper. Experiments by the score have been made with both sugar cane and corn stalks before but had never been entirely successful. Dr. K. Butt has returned to Texas highly elated over the results of the tests of his secret process.

CONDITIONS IN MONTREAL.

(Special Correspondence of "Pulp and Paper Magazine.")

Montreal, February 5th, 1909

Pulp and paper men in Montreal generally express themselves as very well satisfied with the trade situation. A few are slightly pessimistic as to the immediate future, but even these are of the opinion that trade is bound to show an improvement during the coming year. The bulk of the trade, however, are quite optimistic. One firm, more particularly identified with the wrapping paper trade, states that during the past month trade has picked up to an altogether unexpected extent. Although December was a good month, January was very much better; in fact, it was expected at the time the manager of the concern was interviewed by the representative of the "Pulp and Paper Magazine," that January would turn out to be the best January for ten years past. This is a happy augury for trade in general, inasmuch as it indicates that merchants are either now experiencing an increased necessity for bags and wrapping paper, or that they anticipate such in the near future. It would probably be difficult to get a much more accurate index to trade conditions than that furnished by the actual consumption of bags and wrapping paper. It could hardly occur that there could be a largely increasing demand for these which was not occasioned by trade exigencies, unless it were that stocks had been allowed to run unusually low throughout the entire country and ordinary trade requirements demanded their renewal. That this is the case to a very considerable extent, at present, seems to be the general impression among the paper trade. At the same time, the good demand is also due to the requirements of current consumption.

It is an old saying, and probably a true one, that "it is an ill wind which blows nobody good." It is applicable to the drought of the past summer and

autumn which reduced the flow of water in the different streams of Canada to such an extent that the pulp and paper mills which are situated upon them were compelled, in many instances, to close down, and in practically all instances to at least reduce their output to a greater or lesser extent. Had the drought been confined to Canada, the results would have been disastrous to Canadian mills. As it also extended to the United States, and as it would seem to have been much more severe, there, the results it is hoped, will eventually be largely to Canada's advantage.

Speaking with some of the principal mill men of Montreal, to-day, the representative of the "Pulp and Paper Magazine" was informed that, almost for the first time, the makers of news print have had a real chance to show consumers in the United States what they can do. This opportunity they say is directly attributable to the severity of the drought in the United States and also to the prevalence of strikes among the mills, there, during the past year. Some of the Canadian mills are now maintaining travellers throughout the new field and are receiving orders from cities ranging from the east to away west of Chicago, and as far south as New Orleans and the Gulf of Mexico. Others are even shipping to South America, thus supplying a trade which was formerly supplied by the mills of the United States.

The Canadian mills are quite aware that they have only fallen into this trade because of the inability of the United States mills to supply it. But they feel that this is their opportunity to let the newspapers of the United States see that they can supply them with as good an article as they have been getting from their domestic mills, and they hope that such demonstration will probably retain for them the trade thus opportunely developed.

The paper which is being shipped across the border is mostly Number three news. This sells in rolls at about \$1.90

per hundred at the mill, and at this price carries a duty of but three-tenths of a cent. per pound.

Besides this shipment of paper, there has also been quite a large trade done with the United States in pulp. It is claimed that some has been sold as high as \$30 per ton—either to the United States or for export across the Atlantic—although the general quotation for the Canadian market is in the vicinity of \$22 and \$23 per ton. This compares with around \$14 last summer. Consequently, while the production of pulp shows a very large falling off as compared with a year ago, and while the trade in it was greatly reduced, the per-ton profits have been at least 50 per cent. greater, so that the season should not result disastrously to such mills as are able to turn out a moderate output.

The water situation has been suddenly changed by the floods of the past two weeks. The Laurentide mills are now operating practically as fully as demanded and Booth's and Eddy's are both able to largely increase their output.

The dullness which has been prevalent throughout the trade, is, of course, being felt in the market for rags and paper stock of various kinds. Demand for this has been quiet for a long time past, but, with the more optimistic feeling among the mills throughout the country, the situation for stock of this nature shows considerable improvement. Quotations have not shown the alteration they would have had the supply of material been liberal during the period of dullness in the paper trade. Other manufacturing industries were affected much the same as the paper mills. Shirt and other factories which cut up large quantities of cotton goods, reduced their operations proportionately with the falling off in demand for their output, and have therefore not had the same supply of waste material as formerly. As a result, dealers in paper stock of this nature have not experienced an over supply.

Dealers in Montreal quote the market, as applicable to purchases, as follows:— Best white shirt cuttings, 4c. per lb.; mixed color shirtings, 2½c.; dark shirtings, 1c.; mixed rags, 70c. per 100 lbs.; mixed cottons, 90c. per 100 lbs.; hard woolens, 2¾c. per lb.; soft woolens, 4c.; lindsey rags, 80c. per 100 lbs.; satinets, mostly cotton, 45c. per 100 lbs.; old bagging, 40c., and manilla rope, 1¾c. per lb.



COST OF NEWS IN CANADA AND UNITED STATES.

John Norris, chairman of the Paper Committee of the American Newspaper Publishers' Association, in supporting his argument, that news print paper can be produced more cheaply in the United States than in Canada, referred to in last issue gives the following items as entering into the cost of production:— Wood, labor, supplies, transportation, repairs, taxes and insurance, selling expenses.

Comparison should be made between modern mills that make their own mechanical pulp and sulphite pulp and convert these pulps into paper. Canadian mill men, he contends, admit that their skilled labor is brought from the United States and is given an inducement of higher pay to leave home and country. Canada has cheaper wood but one million cords of the wood used by American news-print mills come from Canadian forests at no greater cost to the American mill men than to the Canadian mill men save for the extra transportation which is partially offset by the lower transportation cost of delivery of the finished product of the American mill to the consumer. Coal and machine clothing and supplies of all sorts cost less in the United States than in Canada. Repairs and machinery cost less to American mills, because the Canadian tariff increases these costs to Canadian mills.

The American mill has an adequate home market with little or no selling expense, whereas four-fifths of the Canadian production goes outside of Canada at considerable cost for selling.

The publishers' argument for tariff reduction is based on a plea for a broader market which will help everybody. The imports of pulp and paper of foreign countries exceed 70 million dollars per annum—the greater part of which might be available to the paper makers of the United States and Canada, if the artificialities and shackles imposed by pulp and paper tariffs were removed. Paper would be cheaper to domestic consumers and makers could prosper from the enlargement of their trade. Is not this prize he asks worthy of the effort?



WASTE OF PAPER MATERIAL.

Perhaps the biggest waste of material is made as the paper leaves the couch rolls. This is not true if the machines be equipped with proper devices to catch and transfer the stock that is allowed to run at this part of the machine. As it is now, probably not more than 30 per cent. of the mills have proper equipment for saving stock at this point, therefore it is possible that a very large waste of stock takes place at this point.

In starting a machine when the stuff flows to the wire and travels onward to this point the machine hands are supposed to take it from the wire and place it on the wet felt, but very often trouble is met at the suction boxes, especially when on heavy paper, and possibly 400 or 500 pounds of good stock goes to waste. On the night tour I have known machine tenders to break paper at the wire and allow it to run waste while they washed the wet felt. If they shut the machine the waste no doubt would be as great. Up to date mills are installing ideas to overcome this waste at couch rolls, and in time they will all be in a position to prevent it, so we must

now consider some other part of the mill, and no other part appeals to me as does the cutter room, where under certain conditions an enormous waste is had.

An incompetent cutterman can waste paper enough to bankrupt an ordinary mill, and many a mill has had troubles caused, but not looked for, in this one particular part of manufacture. A cutterman who allows his cutter girls to decide what paper is bad enough to throw away, and does not prevent the helpers on the cutters from tearing off a half inch of paper on the core, simply because they are too lazy to put it over the cutter, is one big waste in the mill, and should be discharged as quickly as he can be.

A cutterman who possesses judgment as to what paper will go through without complaint and is constantly overseeing his work is invaluable to any mill and can reduce waste 5 per cent. in a mill where this department has been neglected. After consideration the writer would say that in his opinion the cutter room is capable of the most waste, providing proper methods are used in saving stock at the wet end of the machine. At its dry end it is well known how incapable machine help can make waste. Hardly any waste takes place in the beater room only what is natural. The only "cure" to adopt in the cutter room is to closely investigate the men and means in the cutter room, watch the paper thrown out or torn off, and in a short time the cause of unnecessary waste will be found, and there is but one man responsible and that man is the foreman of that particular department.—Paper Trade Journal.



VICTORIA PAPER AND TWINE COMPANY, LIMITED.

Another proof of the successful progress of a well known paper firm in Canada, is seen in the recent incorpo-

ration of the Hubbs & Howe Company, Toronto, under the style of "Victoria Paper & Twine Company, Limited," Toronto and Montreal.

Commencing in Toronto some years ago, the growth of the Hubbs & Howe Company has been both rapid and substantial; until now, the name and quality of their goods are known from coast to coast. Owing to this growth it has been necessary to put this company on its own basis, therefore, it has been incorporated with a capital of \$80,000, making it a purely Canadian concern, with its head office at Toronto, and a branch at Montreal. Their stock comprises well assorted lines of imported and domestic papers, bags, parchments, twines, butter and pie plates, and many paper specialties, prices and qualities of which will all be found to be interesting to the trade. This firm also have the selling agency of the Montrose Paper Co., Ltd., and carry in stock a complete line of book, cover, bond and flat papers. Their warerooms and offices are situated at 46 Colborne Street, and seven salesmen give their attention to the Canadian trade. It is probable that the new company may extend somewhat in the near future. There are seven directors of the company, the president being Charles F. Hubbs, the vice-president, William H. Howe, and treasurer J. H. Severance, and Charles V. Syrett, secretary, and many directors.



MEXICAN PAPER TRADE.

"The Mexican Year Book," speaks of the paper trade of Mexico as follows:—

The forestry resources of Mexico are enormous. The forests containing many valuable commercial timbers, including woods of the pine order, and also pinabete of the spruce family, but no information is given as to what extent it is utilized in pulp production.

This leads one to a consideration of paper making in the Republic, but it is as yet low down in the scale of Mexican

manufacturing industries. While there are 2,082 sugar mills, 1,361 distilleries, 433 flour mills, 305 soap factories, 287 brick and tile works and some scores of miscellaneous industrial establishments, the paper mills only number ten. Of these, the most important is the property of the Campania de las Fabricas de Papel de San Rafael y Auxas, S. A. This company, we are told, "owns and operates two paper mills, the San Rafael, situated in the district of Aalmanalco, State of Mexico, some 59 kilometers to the east of Mexico City, and El Progreso Industrial, situated in the district of Aalne-pantla, State of Mexico, some 36 kilometres north-west of Capital. At Zavaleta, near San Rafael, the company has a plant for the preparation of mechanical wood pulp. In addition, the company owns the estate of Santa Catarina, comprising extensive forests covering portions of the States of Puebla, Mexico and Morelos, the Hacienda, or farm of Zavaleta, and a considerable interest in the San Rafael & Atlixco Railway. The more important of the mills is the San Rafael. It is situated in the foot-hills of the volcano Ixtaccihuatl, at an elevation of 2,577 metres (8,455 feet), above sea level, in a region which is densely wooded and has abundant water power." It is further stated that the company in the manufacture of paper, the exploitation of its forests, and the preparation of raw material, utilize nearly 10,000 horse-power, chiefly in electrical energy generated from its own falls, though 500 horse-power is hired from the Mexican Light and Power Company for the Progreso Industrial Mill, and a contract has been entered into with the Puebla Tramway, Light and Power Company, for 3,000 horse-power from the Portezuelo hydro-electric plant for the San Rafael Mill. The output is about 20,000 metric tons of paper per annum in great variety, ranging from the commonest to the finest grades. Further, it seems that nearly all the newspapers of Mexico are printed on paper manufactured by this

concern. The capital of the company is 7,000,000 pesos. As paper trade people we should have been glad of some information regarding the other Mexican mills and the conditions of production which prevail.

The Mexican Custom House Tariff is by no means complex or inequitable in so far as it affects paper, and is calculated to encourage the native manufacture. "Refuse and waste of paper and pulp of vegetable fibre in sheets," which can only be used for the manufacture of paper, and when not dyed, are admitted duty free. Dyed pulps are dutiable as pressed cardboard. Paper of all kinds weighing up to 50 grammes per square metre is admitted at a duty of 16 pesos per legal kilo. The varying duties on paper and cardboard are determined by color, weight per metre, and the proportion of mechanical wood pulp in the white papers. The duties on manufactured papers, and on articles manufactured in whole or part of paper, also vary considerably, ranging from .05 per kilo gross on books and music, printed or manuscript, bound in cardboard, leather or cloth, to 3 pesos. per legal kilo. on playing cards. Maps and charts fulfilling specified scientific conditions are admitted free.

In so comprehensive a volume it could hardly be expected that paper would be more fully dealt with than is the case, more particularly when one considers that paper making has not yet attained great national importance in Mexico. This very fact, however, emphasizes the progressive importance of Mexico as a market for paper—one worth cultivating, and one of yearly increasing significance, as our American friends fully realize. For the rest, it need only be added that whether we regard the "Mexican Year Book" as a storehouse of fiscal facts, historical statistics and industrial data, or otherwise, regarding what is truthfully described as the "phenomenal rise of a great new nation on the ruins of an ancient civilization in the West"—and it is not professed that this review is other-

wise than of that cursory character, in dealing with a vast subject, which the exigencies of space demand—it is satisfactory to be able to congratulate the editors on the success which has attended their efforts in the compilation of their first annual volume.



PAPER-MAKING IN JAPAN.

The Japanese have decided that something must be done toward conserving their remaining supplies of raw material for paper-making. In Japan, paper is used for almost everything, from silver-figured partitions of the Buddhist temple to the rude hut wall of the laborer; from the silk-like vestments of the priest down to the rain-proof shield of the traveller. In fact, the ingenuity of the Japanese is only matched by the varieties of uses to which paper may be adapted.

The work of the United States Government toward determining the amount of paper materials used, and the source of future supply, is being followed by the Japanese, according to a letter from John H. Snodgrass, United States consul at Kobe. The imminence of the danger is apparent from the fact that the Japanese authorities have requested the paper mills department of the Mitsu Bishi Kaisha to take over some 7,500 acres of the bamboo forests of Formosa.

It is known that the bamboo tree has been the raw material from which the Japanese have recently made the larger portion of their paper products; so it is thought that, by introducing the improved methods of forest cultivation and harvesting this tract, ten million bamboos adapted for conversion into paper pulp will be furnished yearly.

The development of this new source of raw material will be of high importance, and may overcome the necessity of the Island Empire looking to foreign countries for the future supply of paper pulp.

TESTING CELLSTUFF.

In an article in *Papier Fabrikant*, E. Belani, remarks that in the purchase of cellstuff it is advisable to be fully acquainted with the purpose for which it is ultimately to be used. For kraft papers with 8-10,000 metres breaking length, not requiring a special degree of whiteness, it is necessary to use Swedish pulp. In such cases it is well to first make a trial purchase of 5 or 10 tons, in order to see whether the desired result can really be attained.

For fine and firm papers, such as are used in maps, documents, etc., and the breaking length of which need not exceed 5-7,000 metres, first grade cellstuff from the wood of coniferous trees is purchased, preferably already bleached. For the very finest papers, used for photographs, a special cellstuff is needed, which must be absolutely pure and carefully freed, from splinters, twigs, and resinous substances, as well as from metal particles of a reducing and oxidising character, such as iron, lead, copper, brass, bronze, etc. Some factories have now made such progress that they sell for a proportionate price white cellstuff of guaranteed absolute purity, for photographic papers, the tests made by the writer of the article bearing out this claim.

Lower grades of paper admit of the use of inferior pulp, naturally containing splinters, black twigs and particles of rosin and coal. Experience here teaches how far pulp containing such impurities can be profitably used. One thing has, however, to be guarded against, even in lower grades of pulp; the presence of gypsum (CaSO_4). This is formed in the boiling and bleaching of the cellulose and must be carefully washed out. It is therefore a mistake in manufacturing if pulp containing gypsum is sold, it being easily recognized by its small white points, about the size of pins' heads. The points will not take color and look like a sprinkling of sugar on the finished paper. It is humorously suggested that while this

effect is by no means normal, some enterprising manufacturers might make capital out of its normal appearance.

All normal cellulose must be entirely neutral, not showing any change in color with either blue or red litmus paper.

In the manufacture of special grades, such as opaque qualities, soft cardboard for copper-plate printing, or blotting paper—soft, absorbent cellstuffs can be often used, principally from the wood of leaf bearing trees and from alfa. The test here is the degree of absorbent property, by which the buyer can see whether the pulp is suitable or not. The test can be very simply made.

Two trips of about 0.58 inch wide and 0.45 inches long are cut from a larger piece of cellulose. These strips are placed in a suitable receptacle and are plunged 0.59 inches deep in a glass with distilled water. At this point the exact time is noted. After ten minutes have elapsed the height is read off to which the water has risen from the surface, this being effected by looking at it against the light.

The mean degree of absorption is then calculated by the formula $S/m = h_1 + h_2$;

— S/m being the average degree

of absorption. For first grade absorbent celluloses the requirements should be 80-90 mm. (3.15-3.54 inches); and for rapidly absorbent grades 90-120 mm. (3.54-4.72 inches). The buyer must, however, keep in view that such absorbent pulps are uncommonly soft, and cannot be expected to display any particular strength.

The following general characteristics of cellstuffs are quoted:

First—Sulphite cellstuff from the wood of coniferous trees gives firm, hard pulps.

Second—Sulphate cellstuff from the wood of coniferous trees gives pulps in general, soft but still firm.

Third—Soda cellstuff from the wood of coniferous trees gives pulps in general soft, but still firm.

Fourth—Soda or sulphite cellstuff from the wood of leaf bearing trees

gives soft pulps for opaque paper, the first named class being particularly ab these persons. Thanks to our own recksorbent.

Fifth—Alfa and reed cellstuffs give very voluminous pulps for papers with a thick feel, without any particular degree of absorption.

Whichever of these various kinds is before the buyer it is only possible to determine by microscopic observation whether the substance is pure or mixed, and what value it has for the buyer from the technical point of view of the quality of the fibre. Without following up in detail the question of microscopic research, it is remarked that patience and diligence will lead to the end in view, even though the inherent difficulties may at first seem almost insurmountable.

A practical moral is deducted from the foregoing explanations in the following words:—

“The methods of the old school of our merchants, in judging cellstuffs only by external appearance or by tearing them with the fingers, do not to-day suffice. Large concerns would do well to appoint a capable paper expert to test their materials. It would be an excellent investment for them to do so.”

Details are, however, given of a simple method of testing cellulose intended for photographic paper to discover the presence of iron, rust and lead. This test can be carried out by any buyer: Pieces measuring 3.94×7.87 inches from the sample drawn are placed in separate flat glass dishes. Over the contents of the first dish is poured a solution of ammonia, and after its evaporation one of red prussiate of potash (0.53 ounce in 30.50 cubic inches of distilled water), being then treated with 0.061 cubic inch of concentrated muriatic acid. If after about ten minutes blue or bluish-gray points and stains appear the cellulose contains metallic iron. Over the contents of the second dish is poured a solution of ammonia,

and after its evaporation one of yellow prussiate of potash (0.53 ounce in 18.30 cubic inches of distilled water), being then treated with 0.061 cubic inch of concentrated muriatic acid. If after about ten minutes blue or bluish-gray points and stains appear the cellulose contains rust (oxide of iron). If in addition or alone there are reddish colored points metallic copper or bronze is present.

A 2 per cent. potassium iodide starch paste is poured into the third dish, which is immediately covered, so as to keep out the dust. If after about fifteen minutes bluish-violet stains and points arise the cellulose contains chlorine and chlorine combinations. In these four cases the cellulose is unsuited for the manufacture of photographic paper.



PRINTING ON PARAFFIN OR WAX PAPERS.

Paper which is impregnated with paraffin or wax has in their relation to the printing ink much the same qualifications as the oil sheets used in printing offices, that of repelling the ink. On this ground one must use the thinnest ink with these kinds of paper, and not feed the ink too strongly, using faultless rollers. A rich dense color should be employed. In order to obtain the transparency of the color one may employ the addition of a cover-white. If this turns the black ink into grey the addition of Milori blue may give the necessary depth. As the ink does not sink into the paper it must be got to harden on the surface, and it may be advisable to mix it with some driers.



—The establishment a year ago by the C.P.R. of an Industrial Department for the purpose of attracting capital to the Dominion and the opening up of new industries has been attended by conspicuous success, and many British and United States firms have either located, or are contemplating locating, branches in Canada as a consequence.

WANTED

Competent General Manager of new Pulp & Paper Mill, now in course of erection in Canada. Address giving references to Box 36
Pulp & Paper Magazine.

Wanted

Position as Superintendent in Sulphite Mill, with nine years experience making Spruce and Hemlock Sulphite. Strictly temperate. With the best of references.

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The Pulp Mill property of The Fraserville Co. Ltd., has passed into the hands of the Town of Fraserville who have municipalized the Electric Lighting Plant and will abandon and dismantle the Pulp Mill. All the machinery and equipment of a complete modern four Grinder pulp mill can be bought at a very reasonable price. An excellent opportunity for parties intending to enlarge their Pulp Mills or build new Mills, for particulars, lists and description of machinery, etc.

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Swedish gentleman is open for engagement in Canadian mill. Experienced in Swedish processes of pulp and paper-making, and has worked on Kraft papers. Understands sulphate method and recovery of waste from sawmills for pulp purposes. Address Box 10, care "Pulp and Paper Magazine," Toronto, Canada.

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Offers wanted for from one to three thousand cords of spruce and balsam, to be delivered next spring. Correspondence solicited.

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Cylinder Paper Machine, 72 inches wide, complete from screen to winder, including steam engine, all shafting and pulleys. Reason for selling, replacing by a larger machine. Will sell cheap to prompt buyer. Apply to "Paper Manufacturer," care Pulp and Paper Magazine, Toronto, Canada.

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One good second hand Beating Engine, must be in first class condition. Capacity 800 to 1,000 pounds dry stock. Mail full particulars of what you have to offer with lowest cash price. Address 'DOMPAP,' care Pulp & Paper Magazine.

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Am on Book, Bond, Blottings and Coating Stock 17 year's experience in different parts of the Globe. Used to the working of daily cost sheets. Would not object to handling a mill making a lower grade with a view to working it up to Book and Blottings. Highest reference as to ability, character, etc. Address M. R. J. care Pulp and Paper Magazine, Toronto.

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Position as superintendent or designer of sulphite pulp or wood pulp paper mills. Large experience, as well from European as from American Mills. Consumption of sulphur in last sulphite mill built, 8%. **Brown**, steamed woodpulp and "**natural**"-brown paper, **specialties**. Highest testimonials for economical construction. Best references. Correspondence solicited. Address,

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**Mechanical and
Chemical Pulp
of all kinds.**

"FLUFFING" CHEAP PRINTING PAPERS.

The "fluffing" of printing papers indicates a deficiency in the intimate felting of the constituents of the paper and a consequent looseness of the mineral and smaller vegetable particles in the sheet. The result is that these particles stick to the type during printing and make a sharp impression impossible; they also fly out at the moment when the type comes in contact with the paper and form a cloud of dust which settles on the other portions of the print or, remaining in the air, make it almost unbreatheable. The printer is often under the impression that "fluffing" is mainly or entirely due to the mineral loading in the paper. The writer, however, contends that it is due to the condition of the pulp, and more especially that of the mechanical wood pulp employed. He has prepared papers containing 80 per cent. of mechanical pulp prepared from fresh, young, sound spruce wood, and loaded them very heavily without getting the slightest signs of "fluffing." On the other hand, papers prepared with mechanical pulp from old spruce wood "fluffed" badly, and strange to say, the papers which were free from mineral loading were far worse than the loaded papers. By using, instead of 20 per cent., of sulphite pulp, 10 per cent. of sulphite and 10 per cent. of straw pulp, 80 per cent. of mechanical pulp prepared from old wood could be employed without very serious trouble from "fluffing." But the straw pulp must not be very much beaten, otherwise it makes the paper too hard and prevents it from adapting itself sufficiently closely to the type-cylinder. Paper containing 10 per cent. of cotton, 10 per cent. of sulphite pulp, and the rest mechanical, shows the least tendency of all to "fluffing," and this is really the ideal mixture for rotary printing machines. Linen or hemp may be used for the same purpose, but in the writer's experience these are not so useful as straw or cotton, for preventing

"fluffing," and care must be taken in selecting mechanical pulp from fresh, young wood. The real cause of "fluffing" is the "dead" grinding or "dead" refining of the mechanical wood pulp. If too little water be used in grinding, the fibres are not washed away but are ground to powder by the stone, especially in the case of horizontal stones. In the refiners the danger of grinding to powder is greatest when too much water is used between the refiner stones. The pulp ought to run thickly and uniformly without stoppages. Since "news" paper does not undergo a sharp beating, in the real sense of the word, in the hollander, but it is rather only mixed there, the cause of "fluffing" in this class of paper rarely lies in the beating process. But the work on the paper machine may sometimes be the cause of "fluffing." The points to be attended to here are: good wet-pressing, not too few drying cylinders, thorough damping before calendering, means for increasing the pressure on the super-calenders if the paper shows a "fluffing" tendency. Apart from mechanical pulp, "fluffing" may be due to excessive chemical action, in the case of wood pulps or rag pulps, owing to over-boiling or over-bleaching. Paper is best tested by holding the hand on the reel as it is rotating, a microscopic examination of the dust which thus comes away will generally indicate the cause.—"Papier Fabrikant."



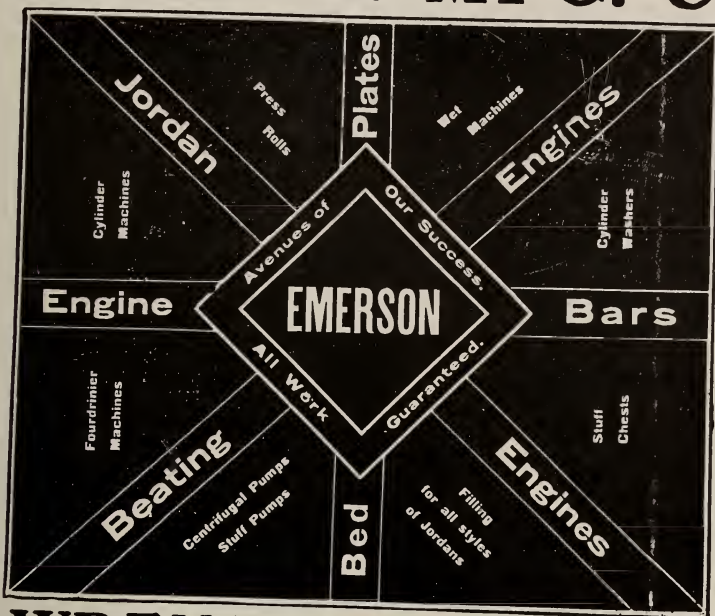
FORESTS AND ADVERTISEMENTS.

This is the way a French contemporary accounts for the destruction of the once enormous forests of this continent:—

The crisis has been caused by the enormous increase in volume, both of weekly and daily papers, which has become the rule in America. They are constantly offering more and more matter to their readers at the same price.

It is difficult to realize that the forests of so vast a country as the United States

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Wires held in stock at Montreal for prompt delivery.

should be even now within measurable distance of exhaustion. Such is, nevertheless, the fact. The Forest Department estimates that just now the expenditure of wood is the treble of the growth, and that by 1940 the United States will have no forests of trees available for papermaking.

It is obvious that the daily and weekly press is the culprit in this matter. Every day sees some new journal appear, and this of course demands its quota of paper. Fortunately many of them are very ephemeral, but this fact merely postpones the evil day, as there is always a new paper to step into the breach. In 1870 it was reckoned that the States published 39 copies of journals per inhabitant. This figure rose to 41.2 in 1880, to 72.2 in 1890, to 103 in 1900, and to 125 in 1905. Here we have a five-fold consumption of raw material, reckoning the increase in the average size of the journals published. This increase is well shown by the following table:—

Average weight in pounds of 1,000 American journals:—

In 1880	91
" 1890	118
" 1900	137
" 1905	176

The average number of pages has increased in the same time from 4.4 to 8.8.

Where, now, is the great increase in the bulk of the American journals to be found? The answer is easy: In the advertisements. In any country no one can fail to be struck with the vast development of the advertising columns of the majority of papers, and we have here the main cause of their increased dimensions and their increased demands upon the output of the paper mills.



BRITISH MARKETS.

"The World's Paper Trade Review" reports the chemical market steady with a moderate amount of business passing.

Ammonia Alkali, 58 per cent. stands at £4 10s.; bleaching powder (soft wood), £4 10s.; caustic soda, 76-77 per cent., £11; soda crystals, £2 17s. 6d.; salt cake, £2; and recovered sulphur, £5.

The cheap parcels of strong sulphite seem to have been secured, £7 5s. to £7 10s. per ton c.i.f., being the ruling prices. Easy-bleaching sulphites show no change. Soda and sulphate are not in much demand; there is little offering of first quality so that prices are maintained, but for second grade there is a little enquiry and a few parcels are still obtainable at low prices.

There is a better enquiry in mechanical pulp for prompt shipment, as stocks on this side are becoming depleted. Better prices are anticipated.

The esparto market remains flat, with little enquiry or business doing.

The home rag market is without activity; prices steady. In foreign rags the demand is small, and the outlook is brighter.

The market for the best grades of china clay continues fairly brisk. Mineral white satinite, French chalks and Barytes keep steady.



PAPER STOCK MARKET REPORT.

Montreal, 6th February, 1909.

Quotations range about as follows:—

Unbleached cuttings ...	\$3 75 to \$4 25
White shoe clips, bleached	3 50 to 4 00
Colored shoe clips	2 50 to 3 00
Domestic white rags ..	2 00 to 2 25
Blues and thirds	1 10 to 1 30
Roofing stock	0 45 to 0 70
Manilla rope	2 00 to 2 25
Waste papers	0 25 to 0 35
Bagging	0 50 to 0 70



T. H. Race, Canada Commissioner to the exposition at Seattle, Wash., next summer, is collecting samples of pulp-wood for the Canadian exhibit.

Telephone: 2726 BROAD.

Cable Address: "LAGERLOF NEWYORK.

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Panzl Linings can be made considerably thinner than the other linings, thus increasing the capacity of the digesters.

The composition and the system of constructing of Panzl Linings are patented in all countries where wood pulp is being manufactured by the sulphite process. The PANZL U.S. Patents have been adjudicated to be valid in law and wholly independent of all prior patents relating to linings of digesters.

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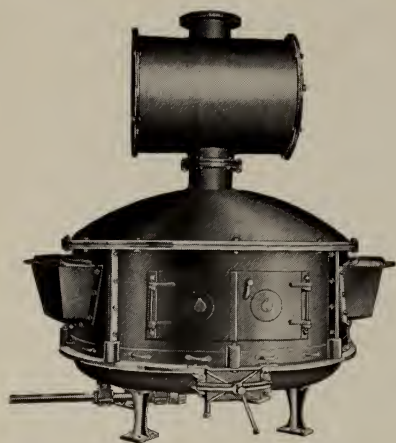
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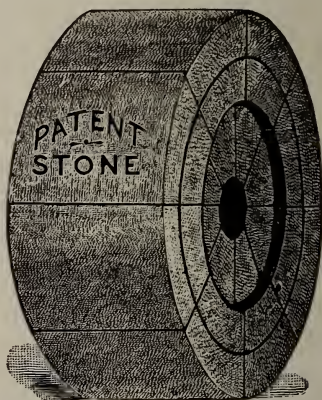
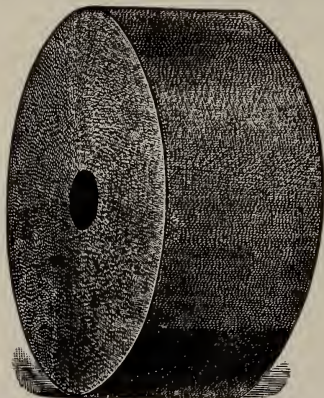
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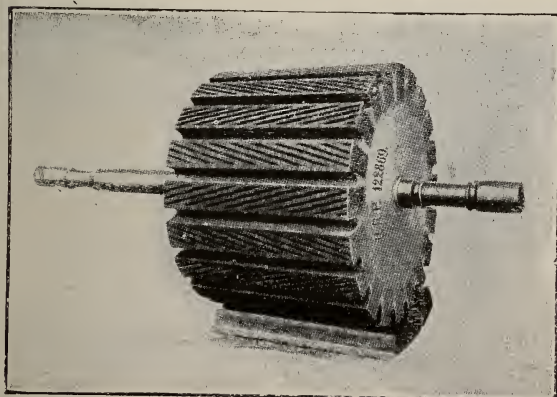
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ADVANTAGES :

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Long fine fibre tough paper.

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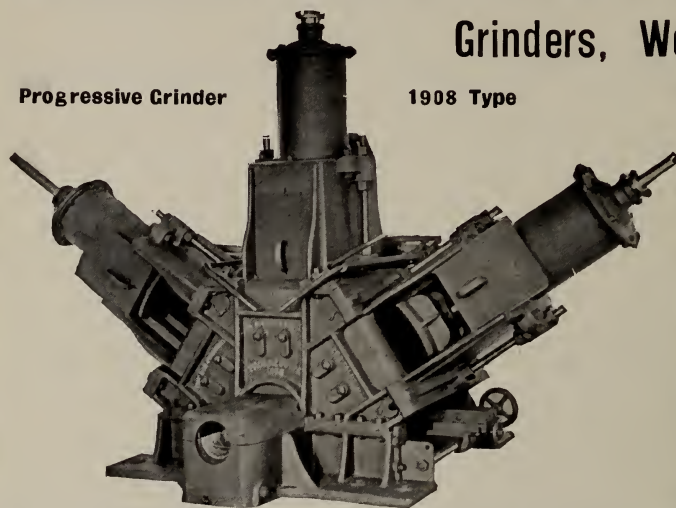
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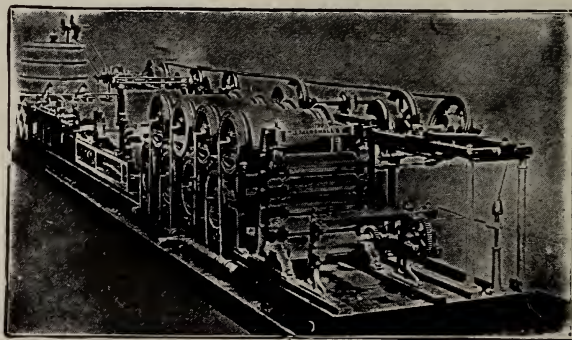
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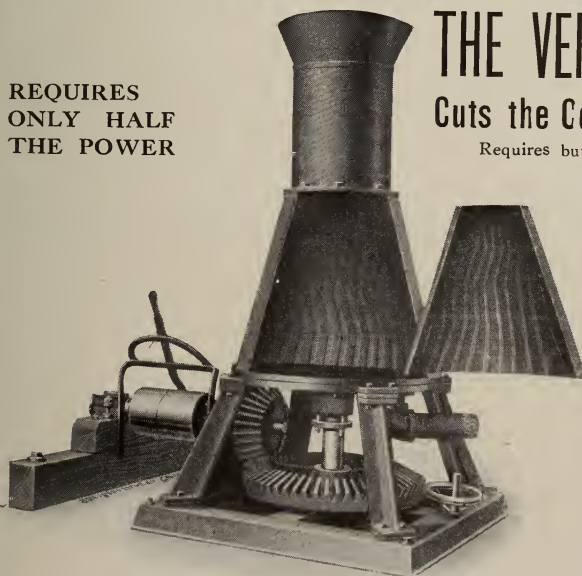
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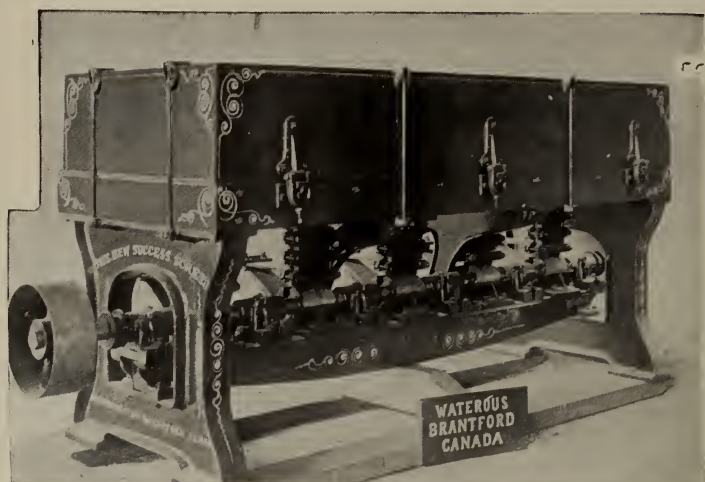
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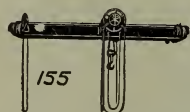
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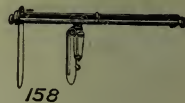
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VOL. 7. TORONTO, MARCH, 1909. NO. 3

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Tariff Changes

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Towards Conservation

Canadian Forestry Association

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Chemical Control in the Paper
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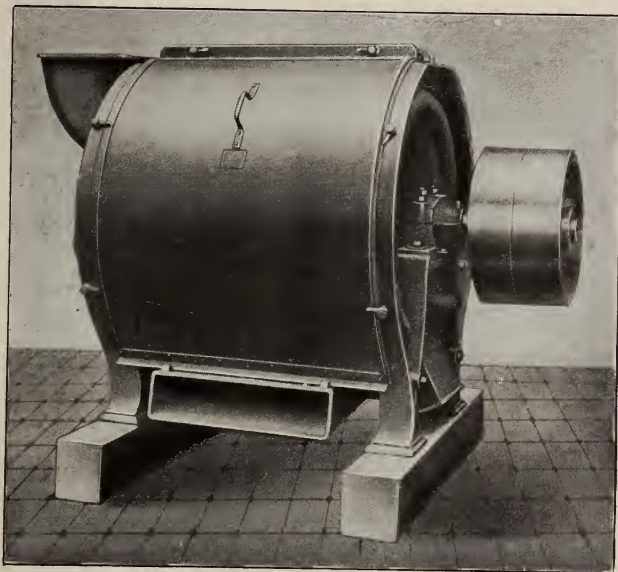
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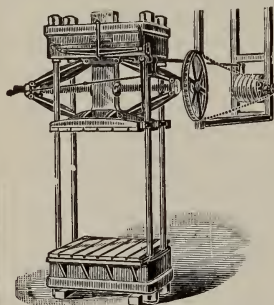
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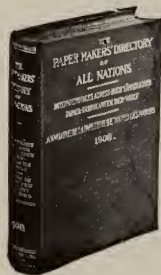
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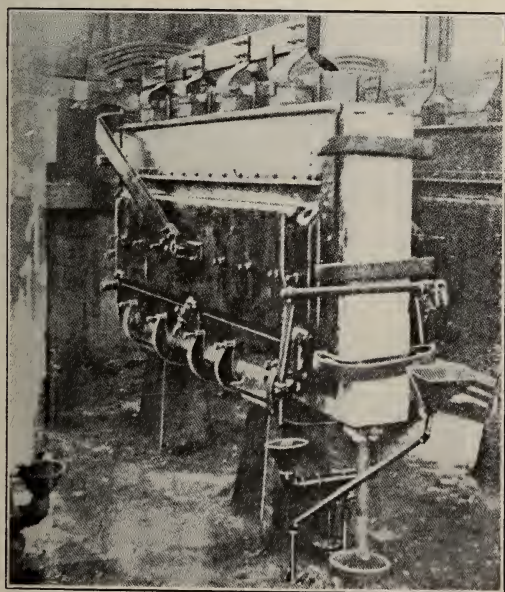
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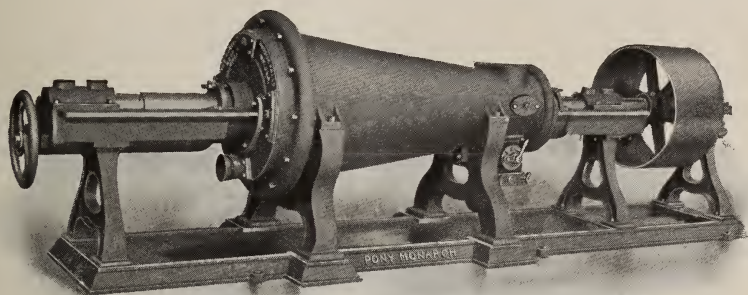
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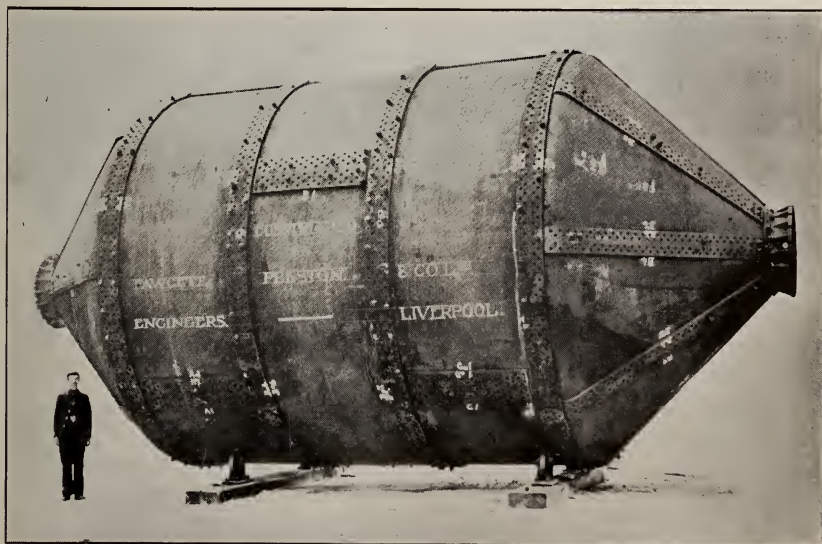
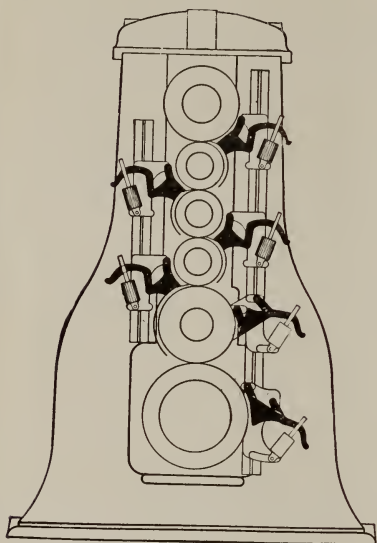


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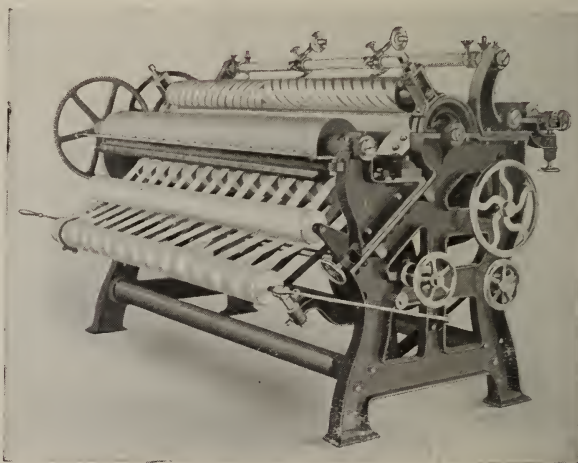


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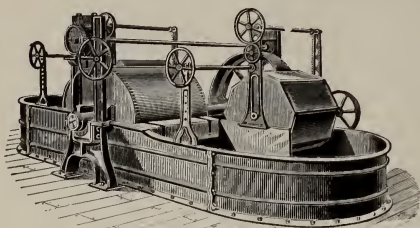
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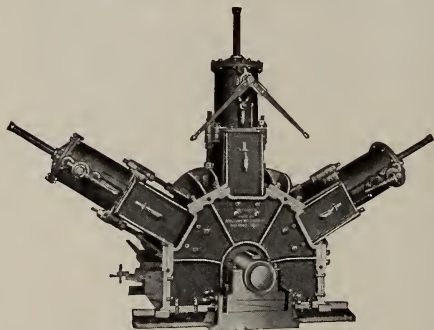
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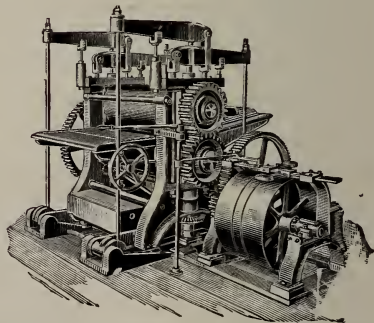
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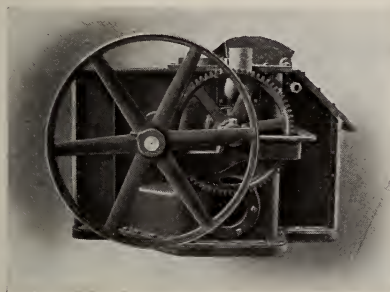
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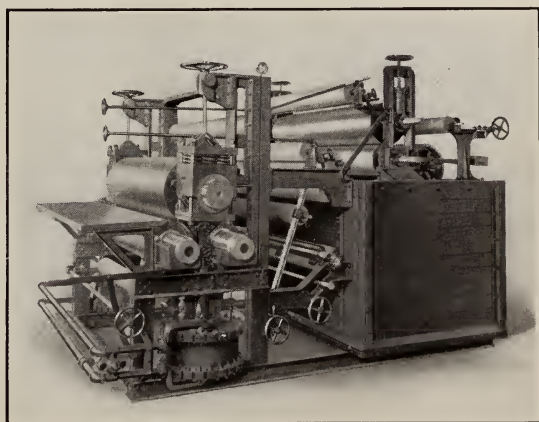
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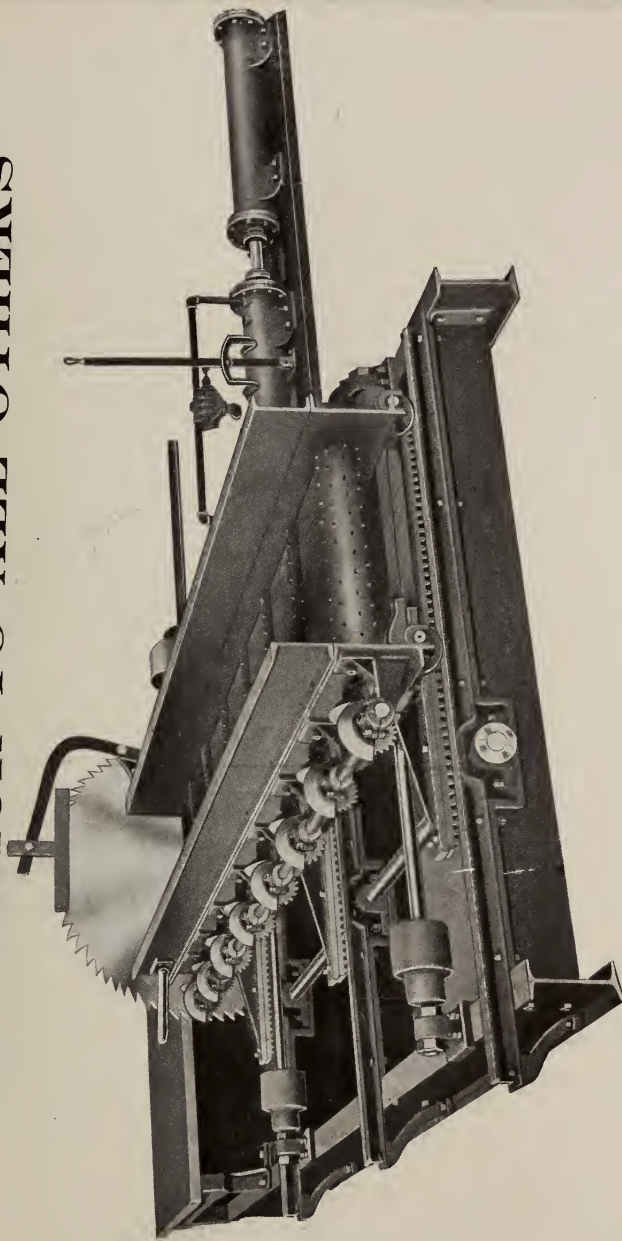
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A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

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THE CONSERVATION CONFERENCE.

In spite of a feeling in the minds of many in the United States that the advocacy of ex-President Roosevelt of free lumber, was actuated by a desire to husband United States resources at the expense of those of Canada, this country has taken a live and sympathetic interest in the Conference for the Conservation of Natural Resources, which took place last month in Washington. The delegates to the Conference from Canada were Hon. Sidney Fisher, Hon. Clifford Sifton, and Dr. H. S. Beland, M.P., R. E. Young, of the Department of the Interior, acting as Secretary. As Hon. Mr. Fisher, who acted as chairman

of the Canadian delegation, stated in his opening remarks, the calling of the Commission was another mark of the high constructive statesmanship of Mr. Roosevelt. High praise was given in the course of the discussions, to the valuable work presented and keen observations made by the Canadian branch of the Commission. While no particularly new principles are recognized as having been laid down as a result of the Conference, its value can scarcely be over-estimated for drawing attention to the absolute immediate necessity for acting on what have been the conclusions of the more far-sighted for some time past. It is now laid down, not as a mere academic expression of opinion, but as a motive of practical statesmanship, that it is a Government's duty to step in for the purpose of preserving the forests, waterpowers, and other great natural resources, even if by so doing individuals may suffer temporary disadvantage. In other words, the idea becomes established by the affirmative action of the representatives of the three Governments of the United States, Canada and Mexico, that the natural resources of a country belong to its people, and must not be wasted or kept out of use or rendered unduly expensive through the working of selfish interests; and that it is the duty of a Government to assert control to such an

extent as to prevent such subversion. Of course, no binding agreement was made along these lines at the convention; but its logical result is the same.

The immediate outcome was a recommendation for the calling together of a World Conference at the Hague at an early date to discuss the best practical measures to be taken with the above object in view. A permanent Conservation Commission is further suggested for each country, delegates from which could meet at a central place at stated intervals to give mutual information as to new discoveries, processes, improved varieties of forest seeds, and other means for improving or perpetuating natural resources.



THE INTERNATIONAL PAPER COMPANY'S INTEREST IN CANADA.

The International Paper Company, in its hearing before the United States Tariff Commission, made some interesting remarks and admissions concerning Canada and the company's relations with this country. Discussing the probable effects of a removal of a duty on paper, it claimed that this would not only not be in the interest of forest preservation (in the United States), but would lead to the immediate destruction of the timber on 5,000,000 acres held by paper manufacturers, and as much more as they could get hold of in the effort to obtain the most immediate good out of the investment. The present duty of 3-10c. per pound on paper valued at not more than 2c. per pound, they claim, is very low, and is not adequate to prevent extensive importations of news from Canada. Any reduction would mean an increase in importations, and a loss of

business for the company. Not only this, it says, but "it would check the growth of our production, and the removal of the duty would close up a number of our mills. We believe that under any conditions the free admission of paper would compel us to abandon many of our plants and either drive us out of business or compel us to build mills in Canada."

The latter evidently is what the International believes to be the true reason for the agitation in Canada for restricting pulpwood exportation. Canadians could scarcely have been observant neighbors of their cousins across the line, had they not learned a few good business maxims; and few Americans would be found to deny that a nation's first concern should be its own interests. But it is not to be gainsaid that the crux of the situation so far as Canadians desire to prevent the growing export of their forest resources, is the duty which they have now begun to realize, that they owe it to themselves and to future generations, to conserve the country's natural riches. Naturally other motives enter, but conservation is the watchword; and we contend that in dealing with our own interests in our own way, we have the example of the United States to bear us out.



STANDARD SIZES.

There is much to recommend the suggestion made recently by Charles H. Remington before the American Paper and Pulp Association. There is no doubt that one of the greatest nuisances experienced by paper manufacturers is the several different sizes of paper required by newspaper publishers. If

newspapers were all printed on paper of a set standard size, the recurring possibility of a news famine would become much less probable. Take the recent period of scarcity. There was but little pulp wood available, and as a result, the pulp mills were unable, taking Canada and the United States as a whole, to produce much more than half their normal output. As a result, many newspapers had to reduce their size or the number of their editions, and the ultimate consequence was a temporary overproduction. If this had been all of one size, it would not matter much; demand would catch up, which indeed it did speedily enough, aided by low water and strikes. But, owing to the uncertainty of sizes required, few paper manufacturers dared to run much ahead on stock paper. And so they go on on the present hand-to-mouth method, which doubles the chances of scarcity or famine any day. By adopting a standard size, publishers would save several items of expense, such as extra storage, etc. In Chicago, all the papers use a certain size of paper which allows a reasonable stock of that kind to be always on hand near where it is wanted. If the idea could be carried out throughout the country, it would be a good idea for all concerned.



TO CONSERVE PULPWOOD SUPPLIES.

An important meeting was held in Washington last month by representative paper and pulp manufacturers who are large owners of timber limits, the result of which is likely to be of great benefit in the better care of pulpwood forests. The chair was taken by Chester W. Lyman, assistant to the president of

the International Paper Co. A. C. Hastings, president of the American Paper and Pulp Association, was present. The purpose of the conference was to endeavor to arrive at some practical method for the scientific handling of forests. The movement had its origin in the recent action of the International Paper Co., whose directors voted to conduct all their forest operations in accordance with the principles laid down by the Forest Service. At the conference upward of 3,000,000 acres of timber lands were represented out of an estimated total of 5,000,000 acres held by paper manufacturers in the United States.

Resolutions passed recently by the American Paper and Pulp Association, urging timber land owners in the paper industry to restrict their cuttings to the reproductive capacity of their holdings, and to adopt practical forest methods were presented at the meeting. The resolutions further urged Legislatures to provide better fire protection for the forests, advocating the patrol system, and to adopt such systems of taxation of forest lands as will encourage the re-growth of cut-over lands and the re-planting of denuded lands. Those present expressed sympathy with the movement for the conservation of the forests, and it was stated that probably all paper makers would unite in furthering this object. Gifford Pinchot stated that this was the first concerted action of any industry, and that he believed it would result in great practical good to the cause of forestry, as it is not unlikely to be followed by the lumber industry. Already a large number of pulp and paper manufacturers are restricting their cutting to the amount of the annual growth, thus safeguarding their future supply of pulp-wood.

THE PROPOSED UNITED STATES TARIFF CHANGES.

In another part of this issue "Conservator" discusses the proposed tariff changes in the pulp and paper trades of the United States as they affect Canada. We do not share "Conservator's" uneasiness, either with regard to retaliation from the United States or the disastrous results of that retaliation on the Canadian pulp and paper industries. It is perfectly true that prohibition of the export of Canadian pulpwood would give a rude jolt to many pulp and paper mills in the United States, and this jolt would not be without its effect on the Canadian pulp trade till business under the new condition of things became settled. But it is evident that the pulp and paper interests of the United States could not appeal for retaliatory legislation without injuring their own industry ten times more than they could injure Canada's. The United States might carry the game of bluff to the very borders of legislative action, in case of prohibition, but the condition of United States forest resources is in sufficiently precarious condition now without aggravating that situation by imitating the blind rashness of Sampson in pulling the pillars of the arena down on their own heads. Prohibition, therefore, is safe, and in the interests of the conservation of Canada's forest resources is a justifiable step. Its expediency when we have seen what the final draft of the American tariff will be for our Government to judge.

Leaving aside this question, the strong point brought out by "Conservator" is that in any contingency the natural conditions are so much in favor of Canada that this country will in the

end get the mills, restriction or no restriction. But the United States Government and people are in earnest as never before in saving and restoring their forest resources, and it is to save their own estate, and not out of consideration for the commercial advancement of Canada that they are willing to let down the bars to some extent to our trade.

While the United States Government is showing such intense earnestness in putting its house in order our own Governments, with the single exception of Ontario, are allowing things to drift while thousands of square miles of timber lands are being tied up by private ownership every year, and other thousands are being desolated by preventable fires. There has been no satisfactory reason given why the Royal Commission asked for in the Dominion House last year on the forest assets of Canada was not granted. If it had been, its report would have been compiled and considered at the same time as the interesting and comprehensive report just completed and presented to the United States Congress. A set of mutually understood regulations and tariffs could then have been carried out which would have been in effect a treaty. Whether these tariffs could have been made to harmonize or not, precious time has been lost in dealing with the most vital material asset Canada possesses.



CORRECTION.

In an editorial in last issue relating to Mr. Barber's suggestion of a common policy between Canada and the United States in the pulp and paper trades it was stated that such a policy

would involve an increase in the Canadian duty on imports of pulp. The words "United States" should have been used in this sentence instead of "Canadian," as the duty on sulphite pulp is now lower in the United States than in Canada. This would be evident from the figures given in Mr. Barber's interesting statement of the situation.



SPECIAL MONTREAL LETTER.

March 5, '09.—A hint of some importance to the trade was dropped here recently by a paper mill man from the United States. He spoke of probabilities in connection with trade in the United States, saying that the season would likely be a good one if there was not another strike among the paper mill employees. It would seem that the regular employees have been working alongside those who were employed to break the strike which existed last season. Friction has lately begun to manifest itself, however, and the mill-owners are a little apprehensive of a flare-up some of these days. Apparently, representations having in view the removal of the strike-breakers have already been made by some of the unions, and should the owners refuse to comply it is difficult to say what may be the outcome.

A strike in the United States might at first sight seem to be advantageous to Canadian mills. A call would be made upon the output of Canadian mills, and an export demand would have the immediate effect of occasioning higher prices. The danger in the situation, however, is that of a sympathetic strike in Canada. The trouble which took place in the Laurentide mills, at Grand Mere, some time since, arose from the fact that the members of the union here objected to making paper to supply to mills on the other side of the line, inasmuch as this operated to damage the cause of fellow-union men there who were on strike. The Laurentide em-

ployees at that time had an agreement with the mill-owners which was still in effect. The action of the employees in breaking the agreement was followed by an open-shop declaration on the part of the owners; and the mills of that company are now open. The men were advised by the parish priest to return to work, and such of them who were considered desirable employees by the employers were taken back at the former wages. These wages are still in force, and seem to be satisfactory to both employers and employees. There is no telling, however, what effect a strike in the United States would have on employees in Canada, so that it is to be hoped that no labor troubles will arise even among competitors across the line.

Notwithstanding the reports received here and there from individual mills to the effect that trade is of a most encouraging nature, the general view of the situation does not seem to warrant any very excessive amount of optimism as to the immediate future. One encouraging feature which seems to be generally admitted, is that trade is at least better than a year ago. On the other hand, there is a general tendency towards lower prices. This might be accounted for by decreased demand, increased supplies, or immediately by reduced cost of raw material.

Instancing that there actually is a decline in the price of paper, we have the list of prices which appears below, as revised on February 15th last, and in which a reduction of somewhere around 7 per cent., as compared with the previous list, appears. The column marked "A" applies to carload lots of fifteen tons in one shipment, that marked "B" to five-ton lots, that marked "C" to one-ton lots, and that marked "D" to smaller lots. Following is the list:—

	A.	B.	C.	D.
Grey or rag				
brown	\$2 60	\$2 70	\$2 85	\$3 00
B manilla	2 70	2 80	2 95	3 15
Red brown	2 80	2 90	3 05	3 25

	A.	B.	C.	D.
No. 1 manilla..	3 60	3 70	3 90	4 15
No. 2 manilla..	3 25	3 35	3 50	3 75
Fibre	3 60	3 70	3 90	4 15
Tea paper	3 25	3 35	3 50	3 75
Bag manilla,				
No. 1.....	3 75	3 85	4 00	4 25
Bag manilla,				
No. 2.....	3 25	3 35	3 50	3 75
Ribbed hosiery.	5 50	5 75	6 00	

Ten per cent. extra on wrappings under 24 x 36-30 basis.

Fifteen per cent. extra on wrappings under 24 x 36-25 basis.

Above prices are for one shipment, one delivery, assorted.

Notwithstanding the decline in prices, wrapping paper men report business keeping up well. January was a good month, February was better, and March started in with every prospect of being a better month than February. The volume of business in each and all these months also is said to have exceeded that in the corresponding months of 1908, so that the situation would appear to have greatly improved.

As demand has not only fallen off, but has actually increased, it is evident that supplies have increased greatly, or that conditions are such that orders can be taken for delivery in the near future at a decline in price.

The fact that pulp men are now selling at much lower figures accounts to a considerable extent for the reduced price of wrapping paper. There has been a very considerable increase in the supply of pulp lately, and the market is now approaching its normal level. Early in December last a dealer demanded between \$31.50 and \$31.75 per ton for pulp, delivered at the paper mill, and, although the buyer refused to pay that figure, he had to pay \$30 upon several occasions. He is now able to make purchases at \$20 per ton, and, being fully convinced that prices must decline considerably further, is only taking small quantities at the lower figure mentioned.

In fact, this would seem to be the attitude of buyers all along the line. Some mills in the United States are taking fair-sized lots, but, for the most part, those which are not still working on a contract are not making contracts, but are buying just enough, and no more than enough, to keep them going. On the other hand, pulp mills continue to talk probable advances in the near future. It can hardly be disputed, however, that instead of the market favoring sellers, as it has been doing for many months past, affairs have taken a turn and it is now favoring buyers.

Makers of building paper are, perhaps, a little disappointed at the general situation. However, their mills seem to be running day and night as heretofore, and they are finding a place for their output, even though it be more or less on contract. This experience would tend to show that the conditions in the building trade are fairly good; otherwise buying would hardly be keeping up as well as it has done. Of course, this is a dull period of the year, and it is as yet almost too early to speak definitely as to the situation. Those mills which are doing a business throughout the Dominion are inclined to the opinion that they are receiving more encouragement from the West than the East, although they are not complaining about results in the latter territory.

Dealers in rags and paper stock report only a moderate trade passing. On the whole, prices show very little change, there being no tendency, however, towards weakness. In fact, one or two grades show a slight advance. New cotton stock is mostly exported to Holyoke, and is not in particularly active demand. Dealers here are hoping for improved conditions before long, but are not greatly encouraged by the outlook just now. Following are the prices quoted:—

	Per.lb.
Best white shirt cuttings.....	\$0 04
Mixed colored shirtings.....	02½

Dark shirtings	01
Mixed rags	07
Mixed cottons	09
Satinettes	05
Old bagging	04
Lindsey rags	08
Manilla rope	1¾ to 2

The death of Mr. Tom L. Paton removes from Montreal the second of two well-known and popular brothers, "Jim" having died a few years ago. The interest of pulp and paper men in "Tom" Paton arises more particularly because of the fact that he represented, among other firms that of Geo. Christie & Co., of Glasgow, Scot., in which capacity he came into contact with the trade through the sale of Fourdrinier machine wires. This branch of his business is now being looked after by J. A. Taylor, on the same premises, at 30 St. Francois Xavier Street, where stocks will be carried as formerly for the convenience of the trade. Tom Paton was best known by the general public of Montreal through his long connection with amateur sports and athletics of almost every description, varying from yachting and swimming to lacrosse, snowshoeing and skating. He was president of the Montreal Curling Club at the time of his death, and was formerly president of the M.A.A.A. and of various other clubs, besides being an officer of the Commercial Travellers' Association. He was fifty-five years of age at the time of his death.

Montrealers are watching with some interest the reorganization of the Cornwall Paper Manufacturing Co. This company was organized by S. Greenwood, formerly general manager of the Canadian Colored Cotton Co., early in 1905, during which year the mills of the company were built at Mille Roches, on the Cornwall Canal, a few miles above Cornwall. Mr. Greenwood was vice-president and managing director, while M. P. Davis, of Ottawa, whose interest in encouraging the development and consumption of power along the line of

the canal was considerable, was president. The superintendent was a Mr. Squires, formerly of the Toronto Paper Co.'s mill at Cornwall. The new mill was designed to make book paper and the machinery was imported from England, in order that the English ideal might more closely be approximated. It is said that the mill was a heavy loser from the start, and even a change of management did not seem to turn it into a paying concern. However, this may be, the company was compelled to assign a few months ago, and the Trust and Guarantee Co., of Toronto, and J. G. Harkness, of Cornwall, took charge. The liquidators have now sold the mill and the property to Isaac H. Weldon, of Toronto, and Edward F. Moody, of Portland, Me. There is a rumor to the effect that the new owners may add wrapping paper to the output of the mill. This rumor could not be confirmed here, and is given for what it is worth, being received with considerable doubt among the trade here. The price involved in the purchase is said to be \$95,000, of which \$85,000 is cash and the balance bonds. The raw material is being taken over at invoice price, but the buyers need not take more than \$12,500 worth. Mr. Weldon is well known in the paper trade, having been with the E. B. Eddy Co., the Laurentide Co., and the Burgess Sulphite Fibre Co. at Indiana. Included in the machinery of the mill at Mille Roches is one of the largest book machines in Canada, its width being 144 inches.



—We never knew exactly how it was done before, but the following, clipped from a daily paper, fully explains it:—"In the manufacture of wood pulp, logs of fir are placed in a strong chamber and there subjected to the action of superheated steam until the water in every cell is converted into explosive gas. The chamber is then opened and the log explodes, converting itself instantly into wood powder."

PULP AND PAPER NEWS

Jos Ford and Company's pulp board mill at Glen Ford, Que., has been burned.

* * *

The Schofield Paper Company, St. John, N.B., are fitting up a fine warehouse for carrying samples for printers.

* * *

The Belgo-Canadian Pulp and Paper Company, Shawinigan Falls, Que., contemplate putting up a sulphite mill at Three Rivers, Que.

* * *

The Imperial Paper Mills at Sturgeon Falls are now running their news machines. They are being operated under direction of the bank.

* * *

It is expected that the Anglo-Newfoundland Development Company's mills at Grand Falls, Newfoundland, will be shipping news print by fall.

* * *

The Thompson & Norris Company, of Brooklyn, N.Y., are making good progress on their factory for the manufacture of corrugated paper and boxes, etc., at Niagara Falls, Ont.

* * *

Plans for the new pulp and paper mills to be erected at Powell River, B.C., by the Canadian Industrial Company, Vancouver, are being prepared by A. Carmichael, hydraulic engineer.

* * *

Col. Appleton, President of the Western Canada Pulp Company, has gone to Quatsino Sound, in company with the hydraulic engineer, and the two will finally decide on the location of the mill.

* * *

The Canada Chemical and Wood Distilling Company, Chilliwack, B.C., capital \$20,000, is applying for incorporation. Plans are being prepared for erecting buildings and installing a plant.

* * *

The strike of the employees of the International Paper Company cost the

men \$236,689 in wages, and the company probably considerably more than that, according to the quarterly bulletin of the New York State Department of Labor.

* * *

J. R. Booth is among the foremost of those giving aid to the poor-sick in Ottawa. He has just made a donation to the funds of the dispensary department of the Frances Willard Women's Christian Temperance Union.

* * *

The Brampton Pulp and Paper Company, East Angus, report more active business. At both mills, according to last reports, both day and night shifts were being employed. The water situation has been greatly improved by recent thaws.

* * *

Application is to be made to the New Brunswick legislature for an act of incorporation for the Tobique Narrows Pulp and Paper Company, Limited. This company will shortly start work on the erection of a dam near Perth, County of Victoria, N.B.

* * *

Good progress is being made on the construction of the power-house for the proposed great pulp mills at Fort Frances, Ont., and it is expected that the steel superstructure will be finished by April 1st. The pulp mill is expected to be operating by January 1st next.

* * *

The President of the West Coast Lumber and Pulp Company, which was, as recently announced in these pages, organized to build pulp and lumber mills in Newfoundland, is William Hoffman, of Stiles, Onondaga County, New York. Another member of the company is Frank J. Carr, of Tully, N.Y.

* * *

W. W. Russell, manager of the Northern Islands Pulpwood Company, states that the prospects for the pulpwood busi-

ness this year are much brighter than last, and believes that there would be a large amount of pulpwood taken out all along Lake Superior. His company has just closed a contract for almost the entire season's output of pulpwood.

* * *

The British Columbia Government has granted incorporation to the Western Canada Wood Pulp and Paper Company, Limited, with an authorized capital of \$1,500,000. It will carry into effect an agreement as to timber limits, etc., with Greely Koltz, and carry on the business of lumberers, manufacturers of pulp and paper, etc.

* * *

The Stebbins Engineering and Manufacturing Company, Watertown, N.Y., has been given a contract by the Gordon Pulp and Paper Company, Dryden, Ont., for machinery and chemical apparatus for the new sulphite mill to be erected on Wabigoon River. The new mills will consist of a 40 ton sulphite mill, a 30 ton ground wood mill, and a 50 ton paper mill. The sulphite will be begun first.

* * *

The Government of New Brunswick, has reduced the minimum size of logs allowed to be cut in that province from 18 feet length and 10 inches diameter at the top to 16 feet length and 9 inches diameter at the top and at this regulation is now in effect. The new regulation was put in force to facilitate the lumbermen's operations, and violations will be punishable by the imposition of double stumpage.

* * *

Mr. E. N. Lewis, (M.P. for West Huron), will again introduce in the Commons his resolution of last session relative to the prohibition of export of pulpwood. The resolution is in the following terms:—"That in the opinion of this house there should be placed such an export duty on pulp and pulpwood as will be sufficient to induce its manufacture into paper in Canada and thereby

save for Canadian labor the six millions now lost annually."

* * *

The suit of the English bondholders against the Sovereign Bank, lessees of the Imperial Paper Mills at Sturgeon Falls, has begun before Official Referee McAndrew. Damages of twenty thousand dollars are claimed for the dismantling of the sulphite mill and for removing supplies for the paper mills, it being alleged that the belting was cut and destroyed, and piping and fittings and other things taken from the sulphite mill to make repairs in the paper mill, the sulphite mill not being leased by the bank.

* * *

According to the Quebec law, stumpage dues must be collected on all stumps over 1 foot in height, measuring from the beginning of the roots; all timber above 6 inches in diameter left in the tops; all merchantable timber used for building bridges or making "corduroy" roads; all logs left in the woods. These regulations have been somewhat laxly enforced. Now, however, they will be carried out more stringently, and already additional taxes on this account have been levied in some cases.

* * *

A large front wall of the Montreal Paper Company at Portneuf collapsed on February 25th. A new channel was being excavated to install another turbine, and owing to the thaw water from the canal overflowed into this and undermined the wall. The wall was over sixty feet long and thirty feet high and its collapse carried down all the machinery in that side of the mill into the canal. The damage is estimated at \$60,000, and about four months will be lost in making repairs.

* * *

At the annual meeting of directors and shareholders of the Lincoln Paper Mills Company, held in the office of the company at Merritton, the employees were

granted the usual annual bonus of 6 per cent. on their wages. This is the eighth yearly bonus that the employees have received from the company, and in addition to this, notwithstanding the financial stringency, the depression in trade, the loss of one of the mills by fire, and the heavy expense of refitting another large mill, the works have been kept running full time.

* * *

R. O. Sweezy, B.Sc., has opened an office at 39 St. John Street, Quebec, as a civil engineer, making a specialty of water-power developments and lumber and pulp mill construction. Although a young man, Mr. Sweezy has already built large dams for Price Bros. & Company, of Quebec, and the Willson Carbide Works, of Ottawa, and has had charge of heavy concrete construction on the Transcontinental Railway under C. L. Hervey, C.E. Having been reared in lumbering localities, and having gone over every district of northern Quebec, as well as many parts of Ontario, Mr. Sweezy feels qualified by such experience as well as by technical education to serve any one undertaking the exploitation of the resources of these regions.

* * *

The British Pulp Company of Newfoundland, Limited, will shortly invite subscriptions for 300,000 shares of £1 each. The promoters' intention is to install near Hawke Bay, Newfoundland, a mechanical pulp plant with a capacity of 20,000 to 25,000 tons. The first installation will be of three units of four grinders each, costing a total of about £118,000, to be followed a little later by an additional unit costing about £20,000 more. The shipping facilities from Hawke Bay are said to be good, though the season of open water would probably not be more than six or seven months per year, thus necessitating the piling of pulp made in winter. The engineer for the new concern is J. H. Wallace, of J. H. Wallace & Company, New York and London.

Peter Whelen, the well-known lumberman, is President of the Ottawa Board of Trade this year. Mr. Whelen takes a serious view of the necessity of protecting our forest wealth and in a recent address pointed out that in the last year in Ontario and Quebec more green timber had been destroyed than could be replaced by reforestry in one hundred years. The loss was caused largely by railway construction and operation, and by carelessness of mining prospectors, settlers and lumbermen. The Government, he thought, should be responsible for fire protection when a limit was thrown open to mining prospectors. Another matter that should be dealt with was that of the export of pulpwood. He referred to the beneficial effect upon the lumber industry of Ontario of the prohibition of the export of sawlogs, and held that a like beneficial effect upon the whole paper, pulp and pulpwood trade would follow the prohibition of the export of pulpwood.

* * *

The action of the Burgess Sulphite Fibre Company, of Berlin Falls, N.H., to recover damages to the amount of \$2,000 from P. A. Barbeau, of Cookshire, Que., for alleged breach of contract, has been dismissed with costs by Justice Hutchison, at Sherbrooke. The plaintiff's suit grew out of a contract which it alleges it entered into with the defendant to deliver to its mill at Berlin Falls 1,000 cords of pulpwood, and to continue at the rate of 200 cords per month, the price agreed upon being \$6 per cord, plaintiff to pay freight. The defendant failing to live up to the contract, plaintiff was obliged, it is alleged, to purchase the wood elsewhere at a cost of \$8 per cord, thereby sustaining the amount of damages claimed.

* * *

Although it will not be completed until midsummer, the beneficial effect of the big new dam at the Chaudiere Falls between Ottawa and Hull will be felt during the coming spring. This dam had been under consideration for a long time

before it was undertaken by parties interested in power on both sides of the river. The dam will cost about \$300,000 when completed, but it is estimated that the saving of water will be so great as to soon pay for the cost of the work. The dam which is built of reinforced concrete is 1,300 feet long, stretching in a true arc of a circle from shore to shore. Over a thousand soundings of the river bed had to be taken, and hundreds of plans made. Yet so accurately did the engineers do their work that in spite of the unevenness of the river-bed when the steel girders joining the two halves came to be laid in place it was found that the holes for the last rivets were not half an inch out of place. There are 49 piers in the river and two abutments all made of reinforced concrete. Each pier is 39 feet 5 inches long and 4 feet thick up stream, and 2 feet thick down stream. The rods running up through the concrete to give it rigidity are bolted down to the rock of the river-bed. The work this spring will be that of laying a track along the tops of the piers from shore along which will run the travelling cranes for raising and lowering the stop logs. These stop logs will consist of 550 pieces of British Columbia fir which will be raised and lowered in slots between the piers like a window sash. When this great work is completed the next step will be the placing of regulating dams on the tributaries of the Upper Ottawa to regulate the flow of water so as to keep the power as nearly uniform as possible during the year.



—In the "Commercial Monthly," the new magazine now being issued in Montreal, there is an interesting article on "Paper not from Wood Pulp," by R. S. Tinger, and giving the author's views as to how cotton and corn stalks may soon figure as important factors in the paper industry. Some views are given showing cotton pulp paper, also illustrating the making of corn stalk pulp on stretchers.

THE AWAKENING OF MR. CANUCK.



JACK CANUCK (to Uncle Sam, who is trying to re-engage him for wood cutting for United States mills): I think I've worked as hired man on my wood lot long enough, Uncle. I'll cut wood now for my own mills.—From Toronto World.



—The American Writing Paper Company experienced a bad year in 1908, the deficit being no less than \$255,215.



—Lord Northcliffe (the Harmsworths) is at the head of a company which has just been formed in London, Eng., under the title of Imperial Paper Mills, Ltd., and with a capital of £200,000 to build paper mills at Gravesend, near London. Among the directors are B. Clyde, 60 Winchester St., South Belgravia, London, and P. A. Taffs, 34 Henniker's Gardens, East Ham, London. It is stated that no great haste will be shown in starting operations, as the Newfoundland undertaking will occupy first attention.

ATTITUDE OF PAPER MANUFACTURERS TOWARDS CONSERVATIVE FORESTRY METHODS.*

By Carl Riordon.

The forest resources are practically all in the hands of the governments or large industrial institutions. I do not believe that our governments will thoroughly conserve the natural resources directly under their control, which are really the capital of the nation, so long as there is any considerable portion of them unappropriated and unexploited, because the people do not care how much of these resources is wasted or stolen so long as they feel that there is more left, that there are still opportunities.

Only the Government can afford to handle natural resources without regard to the immediate profit from them. The industrial institutions owning natural resources must always first consider immediate profits in appropriating and exploiting these resources, so that the pulp and paper industry must first operate its timber holdings to produce present profits. That being provided for, it must operate them to perpetuate the supply, at any rate in the case of mills in close connection with their timber areas.

The paper and pulp industry has more need of conservative forestry methods than any other industry that is using the forests commercially, because it has the largest investment per quantity of timber used, and this investment is represented by plant that is less movable than any other wood-using industry, and also because it requires a large amount of power steadily all through the year, and this depends on the forests remaining at the head waters.

These remarks apply more particularly to paper and pulp mills that are located near their woodlands, and directly accessible to them. Most of the large mills

in Canada are so situated, but most of the large mills in the United States are not. It is obvious that the mills that are located in close connection with their woodlands must have a very vital interest in perpetuating the supply of wood on those woodlands. Mills not located near their woodlands are interested only in getting their wood as cheaply as possible without regard to perpetuating the wood production of any one area, because they depend rather on the general supply.

In the United States I understand that practically every firm owning timber lands there is adopting the methods of conservative forestry and employing trained foresters for the purpose, and even planting trees. They are doing this in many cases beyond the point that immediate profits would allow because they have been able to provide a timber supply from Canada.

In Canada there has been almost a revolution in the last few years among the pulp and paper firms operating timber limits, in the direction of conservation. We are all taking a much greater quantity of timber per tree; taking the tops down four inches diameter under the bark, and taking dry trees, dosy butts, and dark-rotted logs. We are limiting our cuts to annual growth where possible. We have evolved fire patrol systems that have prevented serious fires in our timber.

The Laurentide Paper Company, the Union Bag and Paper Company, and the Riordon Paper Mills, are all employing trained foresters and spending considerable money in thoroughly investigating their timber resources and everything to do with their development, and in studying timber growth and methods of manufacturing logs. They are inaugurating the policy of marking the trees that shall be cut, and are adopting rules for jobbers and foremen that are eliminating the waste of anything they can possibly use. This means making use of a great deal more of the product of the forest than any other industry does.

*Read at Convention of Canadian Forestry Association in Toronto, February 12th, 1909.

I do not think that any of us have yet carried our forestry work to the point of drawing up a complete policy of timber land management. We have not yet completed our data.

When we have decided upon thorough going systems of timber management that would provide for forest conservation within the limits that profits will allow, we will not be able to put these into operation because under present conditions we cannot be sure that we will reap where we have sown. This is principally because our governments are permitting wholesale timber thieving under the guise of settlement, and limit holders are always exposed to the risk of having their best timber taken up by some operator who gets possession of lots by nominally conforming with the conditions of the law for settlement. I do not know of any limit holder who has any objection to legitimate settlement in the forest provided it is on land that is really fit for agriculture. Such settlement is a great help because it opens up the country, and provides a supply of labor and food stuffs. To illustrate the amount of forest destruction that has been caused by timber thieves, it is only necessary to state that, out of 7,000,000 acres that have been granted to settlers in recent years, in Quebec, 2,000,000 acres are already stripped and abandoned. The exportation of pulp wood has been largely responsible for this destruction because it has offered the principal market for the timber thief. The consumer of wood in a foreign country and at a distance, does not care how the wood is obtained.

Also it is probable that the present Government regulations for the cutting of timber will interfere to some extent with the carrying out of systems of timber management based on our forestry investigation. These do not permit the leaving of mature trees in an area cut over, although some of them are necessary for seeding. They also do not permit of the cutting of trees below a certain size on the stump although in many

places trees reach maturity below this size and sometimes even reach their maximum growth. They do not permit the slashing of timber that is of no value commercially, although in many cases this would give room to timber that is of value commercially.

The pulp and paper men of Canada have several times drawn down upon themselves the accusation of grinding their own axes because they have drawn the attention of the Government to the exportation of pulp wood and the disadvantages of it. It is perfectly obvious that the prohibition of this export would serve the interests of those at present engaged in the production of pulp and paper in Canada, but that should not prevent them from laying the facts of the case before the Government, because naturally they know most about it. We have stated that in our opinion this exportation is causing the destruction of large areas of Canadian forests and that Canada can not afford this. We have admitted that our ideas of the pulp wood resources of Canada are based only on estimates and consequently we have not urged the Government to prohibit immediately the exportation of pulp wood, but not to lose any time in finding out how much pulp wood Canada possesses. If she has enough to supply the world's demand for paper there is no serious objection to the United States' mills being allowed to take what they want, except the injustice to the Canadian manufacturers in allowing those of the United States to have the advantage of our wood and their own great market while we have only the one without the other.

Our pulp wood resources and our pulp and paper industry are now principally situated in the area between the Lievre River on the West and the Batiscan River on the East. In that area there are 18,000 square miles under license, of which 14,000 square miles are owned by pulp and paper firms, and I believe that will always be the heart of the pulp and paper industry of America. Outside of this area there is growing up another section

to the East, including the Lake of St. John District, on the North shore, and another district still further to the East, running from Rimouski into New Brunswick. The North shore will develop comparatively slowly on account of the lack of transportation and other facilities, and because the spruce is scattered. The Eastern Quebec and New Brunswick region is also of a lower class because the spruce is a little soft and not so plentiful, and is also further from the great market—the United States. West of the great spruce region is the pine area of the Ottawa Valley and the Province of Ontario, and apparently we do not find much spruce again until we get beyond Lake Temiskaming, and even then it is not in very great quantities, except in the region near Lake Nepigon. North of the explored areas in Quebec, and northwest of those in Ontario are great areas of which little is known, and unless these contain great quantities of pulp wood, then Canada has none to spare. This question ought to be settled.

I think, then, that the pulp and paper industry has most at stake in the forest and is likely to adopt conservative methods in the use of it in so far as cost and profit will permit, and that they will do this even more than our Governments because the people are indifferent about conservation. Our pulp and paper industry is now carefully studying forestry and has already applied more conservative methods, and a good many firms will soon have adopted thorough going systems and will be applying them as far as the regulations will permit and where they are sure of retaining their timber. The Canadian pulp and paper manufacturers think that the exportation of pulp wood fosters a careless use of the forests and that Canada has not enough pulp wood to afford this, and that the Government should find out what we have and adopt a well-founded policy rather than let matters drift, as at present.



—The interest of the late Major J. Fred. Ackerman, who died in May last, in the Perkins-Goodwin Company, New York City, has been purchased by John

H. Duffy and Eugene F. Crowe. They each took half of the stock held by the Ackerman Estate. At a recent meeting the following new officers were elected: John H. Duffy, president, and Eugene F. Crowe, vice-president and secretary. F. W. Westlake will continue as acting treasurer of the company.

—For straining the waste water in paper mills and wood pulp plants an apparatus has been patented in Norway which may be worth notice. The arrangement consists in providing along the whole length of the cylinder, where the strainer passes down into the water, a separate space, into which relatively long fibred material is continually fed, for the purpose of causing this mass to deposit itself on the cloth in the compartment and to form, on the outer side of the cloth, a filter layer.



HUDSON'S BAY RAILWAY.

The surveys of the proposed Hudson's Bay Railway are now practically completed, and a tentative report to the Dominion Government by the chief engineer, John Armstrong, estimates the total cost of the road, either to Fort Churchill or Port Nelson, with necessary terminal and harbour improvements at each place, at between seventeen and eighteen million dollars. No obstacle is said to be presented to easy and comparatively cheap construction, and the engineer submits a detailed estimate of the comparative cost of the alternate routes surveyed from Split Lake to Fort Churchill and from Split Lake to Port Nelson. The Fort Churchill route, aggregating 465 miles, will cost about \$11,608,000 for the railway, and an additional five to six millions for harbour and terminal works. The Port Nelson route, a distance of three hundred and ninety-seven miles, would cost approximately \$8,677,000, but the terminal and harbour improvements would cost sufficient to counterbalance the smaller amounts required for railway construction. On the whole Mr. Armstrong reports in favor of the Nelson River route.

CANADIAN FORESTRY ASSOCIATION.

A special meeting of the Canadian Forestry Association was held in the Convocation Hall of the University of Toronto, on the 11th and 12th ult.

President Snowball occupied the chair. The convention was opened by His Excellency the Governor General, who dwelt upon the prime importance of the interests those present had in view, and instanced the fate that had befallen nations in the past which had been neglectful of the necessity for preserving the forests, together with the maintenance of water-powers and soil fertility which that implied.

President Snowball, in his address, referred hopefully to the effects of the Department of Forestry which had been established in connection with the University of New Brunswick, but thought the Government should not stop there, but should appoint lecturers who would talk on the practical effects of forestry in language easily understood by those who could not attend college. More stringent regulations also were needed regarding the setting of, and protection against, forest fires. He also questioned the wisdom of discussing the prohibition of export of small trees for Christmas decoration, and allowing at the same time those of larger size to go out of the country instead of manufacturing them into pulp and paper here. "The Americans," he said, "want our pulpwood to save their own. We want their mills, not only to increase our industrial employment, but so that they will have a large investment depending on our forests, and thus give them an interest with us in conserving our forests."

Aubrey White, Deputy-Minister of Lands and Forests, calculated that there were 250 million cords of pulpwood north of the Height of Land in Ontario, and that Ontario possessed, on a conservative estimate, lumber supplies for thirty years. To which Prof. Fernow replied that a thirty-year supply sounded very

nice, but that when that time had gone they would still require timber.

Hon. Sidney Fisher, Dominion Minister of Agriculture, in an eloquent speech on the need for greater carefulness in conserving our resources, pointed out that, while Canadians have been boasting that they possessed the greatest water transportation system in the world, that already the Great Lakes showed considerable variation, harbors had to be deepened, and the transportation interests were in constant dread lest the St. Lawrence Channel should be endangered—and it would be endangered unless we looked after the forests which conserved and regulated the water flow.

Several speakers alluded to the uncertainty as to the area and true timber value of Canada's forest resources, and there was a general feeling manifested that we have been living in something of a fool's paradise as to their "inexhaustibility."

Prof. Fernow, Dean of the Forestry Department of Toronto University, was one of the first to dwell upon the importance of ascertaining the truth on this point; and at the convention he was equally emphatic in his call for more scientific methods of protecting the forests.

It is not likely, he said, in a very practical address on "What We Want," that a large annually newly recruited army of incompetent, inexperienced men, appointed through political influence, even if a sprinkling of competent woodsmen is added, will successfully cope with the evil. Thorough organization of smaller groups of continuously employed experienced men, which may be assisted by some less experienced during the dangerous season, and thorough inspection while they are at work are necessary. A scheme should be evolved for the termination of timber licenses, or at least more specific regulations made as regards cutting and taking care of the debris.

Hon. F. Cochrane, Ontario Minister of Lands, Mines and Forests, stated that

he welcomed criticism, but asked for practical ideas for the better preservation of the forests.

Prof. Mumford, of Michigan University, said he had seen much evil results from the diameter idea. The only thing to do was what was being carried out on the United States reserves, when on 165,000,000 acres not a single tree was cut which had not been marked by the forester.

Other papers read included "Forest Conditions in Nova Scotia," by F. C. Whitman, President of Western Nova Scotia Lumbermen's Association; "General Forestry Conditions and Education," by R. B. Miller, of New Brunswick Department of Forestry; "Practical Side of the Forestry Question," by A. T. Drummond; "Dominion Forest Reserves," by A. Knechtel; "Waste Land Planting," by E. J. Zavitz, Forester of Ontario Agricultural College; address by J. B. Miller, Vice-President of Canadian Lumbermen's Association; "Interest of Paper Manufacturers in Conservative Forestry," by Carl Riordan, servative Forestry," by Carl Riordan, (printed in full on another page; and a paper by Elwood Wilson, Forester for Laurentine Paper Company. The latter stated that the lack of qualified rangers practically nullified excellent regulations which prevailed in Quebec. Out of four years' experience he had yet to see a Government officer come into the camp and see whether the regulations were being carried out.

Two speakers, Prof. Macoun and Hon. W. C. Grimmer, Surveyor-General of New Brunswick, dwelt upon the importance of Canada's bog areas, when drained, as a means of replacing the forests.

The tenth regular annual meeting of the Canadian Forestry Association will be held on the 11th inst., in the office of the Superintendent of Forestry, Ottawa. At this meeting no set papers or addresses will be presented. It is called for the transaction of general business, election of officers, etc., and other matters of a more or less routine nature. A.

H. D. Ross, the Secretary, draws attention to the fact that as expenses during the past year have been unusually heavy, members in arrears for dues, are requested to remit at once to the Treasurer at Ottawa.



CHEMICAL CONTROL IN THE PAPER MILL.

In view of the oft-repeated exhortation to British manufacturers that they should emulate their German cousins in the application of chemical science to their conduct of manufacturing operations it will be interesting to consider what progress has been made in this direction during recent years in the paper mills of Great Britain.

At the recent meeting of the British Association in Dublin, the President of the Chemical Section devoted his address in great measure to driving home the indictment. He naturally referred to the classic instance which the British chemical trade affords of the loss of a great industry. Perkin discovered the first coal-tar dye; British chemical manufacturers were too lethargic to grasp the possibilities behind the discovery; the Germans did see these possibilities. They sunk their capital in exploiting and developing Perkin's epoch-making research, and the great German aniline dye industry of to-day is the result. Arguing from this instance, and in applying it almost to the whole dange of industries in which chemical science plays an important part, it is very easy to arrive at an erroneous generalization, and to condemn British manufacturers as being beyond hope where exact science is concerned, and especially as regards the application of chemistry. Let us see what is the state of affairs in the paper trade.

Although paper-making cannot be regarded as a chemical industry per se, still, the importance of the science is now being generally recognized, and although the chemical side is still subor-

minated to the engineering, more and more attention is being paid to the chemical control of the operations of the paper mill. It is scarcely an exaggeration to say that the advent of wood pulp as a raw material or rather as a "half stuff," marked the dawn in the mind of the paper-maker of an intelligent interest in chemical analysis. When the manufacturer noticed that he frequently received pulp which was decidedly wetter than it should be, he naturally resented the invoicing, as fibre, of water which he could obtain far more cheaply from his mill lodge, and he sent an occasional sample to an analyst. The presenting of the analyst's certificate secured the allowance of a substantial claim for excess moisture, and, the paper-maker's appetite for claims once being whetted, samples were drawn more frequently, until regular testing became the rule rather than the exception.

The next step was a still more important one. It was an expensive operation to call in a public analyst to sample and test every delivery of pulp, but it was equally risky to pass all parcels which did not feel abnormally moist. Accordingly, rough methods of works testing were adopted. Drying rooms were fitted up in some mills, exhaust steam being passed through pipes fixed round the "stove." Large samples of pulp—often equal to several bales—were dried in these rooms, and when excess moisture was shown the analyst's services were requisitioned. Such rough apparatus, however, did not give complete satisfaction, and in many works the fitting up of a laboratory and the employment of a chemist was the natural development.

This stage represented a great measure of progress on the part of the paper-maker in the establishment of chemical control over his operations. His claims for excess moisture in his pulp were far more frequently successful, and this was a source of much satisfaction, judging from the carefully kept records which we have frequently

seen in some of the great mills, but this was only one result. Having now acquired, as a permanent member of his staff, a more or less well-trained man possessed of chemical knowledge, one by one the other raw materials of the manufacture were brought under examination. It was found that oils and lubricants were frequently being used that were not the best obtainable for the money spent; the viscometer then made its appearance in the paper mill laboratory, and we have a keen recollection of the initial experiments with this apparatus in one of the large mills in the Manchester district. Careful discrimination in the placing of contracts had the inevitable result—greater economy accompanied by increased efficiency.

Fuels now came under analysis in some works, but we fear that accurate testing and effective control of this very important and costly raw material is still far from general; still, we know of several mills in which CO₂ estimations in the flue gases are systematically carried out, together with the calorific examination of the fuel deliveries; a very noteworthy economy in the coal bill, and—what is also a consideration in many districts—the practical suppression of black smoke, is the outcome, and the results generally are extremely gratifying.

The whole range of raw materials is now under expert control in many works, and whereas ten or a dozen years ago it was a very rare thing to find a properly equipped laboratory in a paper mill, they are now almost general; whether they are all of a uniformly high standard of efficiency is another matter. But as chemical control of raw materials made headway, the other side of the application of chemistry gradually became recognized. The chemistry of cellulose attracted the attention of many expert chemists, and presently—as was again inevitable—works chemists in turn devoted their attention to this side of the industry. Model plant was introduced in one or two mills, and small-scale ex-

periments became an institution. The treatment of various classes of fibres, sizing experiments, the making up of small batches of stuff, and other laboratory operations which are possible with such model plant—all these provided useful information and guidance to the manager, and now a model paper-making machine does not seem to be an improbable addition in some, at all events, of the larger mills.

The directions in which chemical control is possible and valuable in the paper mill are manifold. The treatment of unsatisfactory water supplies has been successfully undertaken, and batteries of filters are working under the supervision of the chemist and engineer. The testing of effluents has resulted in the avoidance of trouble with the river authorities, and a consequent increase in peace of mind for the manufacturer, while economy has again been secured by the saving of valuable fibres which formerly passed away with effluent. Chemical science has been applied to the recovery of the soda from paper mill liquors, and here, once more, satisfactory economy has been effected, while the whole range of chemical and general supplies is regularly examined, in every case with the same uniform result—the securing of increased efficiency accompanied by a reduction in costs.

It will be seen from this brief summary that, although the establishment of chemical control in the paper mill may not yet be complete, or even general, still, much has been done, and the lines of future development are well marked. The British manufacturer moves slowly, but an intimate acquaintance with the industry shows that during the last decade he has been moving surely and in the right direction.—Paper Maker.



CANADA AND THE UNITED STATES TARIFF REPORT.

The Select Committee of the United States House of Representatives, known

as the Pulp and Paper Investigating Committee, consisting of James R. Mann, Illinois, chairman; James M. Miller, Kansas; Henry T. Bannon, Ohio; William H. Stafford, Wisconsin; Thetus W. Sims, Tennessee; William H. Ryan, New York, has now made its report, and Canadians will find it a most interesting document. Should it become law, which is not at all certain, the next move will have to be made by Canada, more particularly by Ontario and Quebec.

Before considering the effects of the proposed changes, it will be well to look briefly at present conditions.

Until within a little more than a year ago, we firmly believed we had in Canada illimitable resources in timber of all sorts. By degrees this belief has weakened, until we are now afraid that our supply of pine is limited to thirty, or at most forty, years' consumption, and have grave doubts as to the inexhaustible nature of our pulpwood tracts, particularly the more accessible of them. In proportion to the extent that our belief in "the boundlessness of our undeveloped resources" has been shaken, we realize the immediate necessity of doing something to conserve and perpetuate our forest wealth. Using these words, conserving and perpetuating, in their strict sense, we have so far done nothing to conserve or perpetuate our forests. Restrictions which only result in increasing the revenue of the province, or the amount of money obtained for manufactured forest products, good as they may be in themselves, do not prolong, but temporarily, the life of our forest areas. Whether our spruce trees are made into pulp-wood, pulp or paper, here, or in the United States, does not affect the question from a forestry point of view, and it is well to have this clearly understood before taking up the other side of the question. We must keep in mind that the vital thing is the conservation, within reasonable limits, of our present resources in pulp-wood and water-powers; we must have pulp-wood and power if we are to make pulp and paper.

The manufacturing side of the question has naturally received more attention. It is much easier to dispose of something one has, than to reproduce it, and the returns are quicker. Ontario has for some time prohibited the export of pulp-wood cut on Crown Lands, and has recently stipulated that in future concessions the wood cut must be manufactured into paper within the province. Quebec allows a rebate of 25 cents from the 65 cents a cord collected by the province, as timber dues from Crown Lands, when the wood is manufactured into pulp in Canada. The object of these provincial regulations being to stimulate manufacture, not to save the timber, except incidentally. The Dominion Government has imposed a duty of 25 per cent. ad valorem on all pulp imported into Canada. These, with the ordinary revenue-producing timber regulations, constitute our pulp-wood policy, if we can be said to have one.

The United States tariff at present in force reads as follows:

"Mechanically ground wood pulp, one-twelfth of one cent per pound, dry weight; chemical wood pulp, unbleached, one-sixth of one cent per pound, dry weight; bleached, one-fourth of one cent per pound, dry weight: Provided, that if any country or dependency shall impose an export duty on pulp-wood exported to the United States, the amount of such export duty shall be added, as an additional duty, to the duties herein imposed upon wood pulp when imported from such country or dependency.

"Printing paper, unsized, sized or glued, suitable for books and newspapers, valued at not above two cents per pound, three-tenths of one cent per pound; valued above two cents and not above two and one-half cents per pound, four-tenths of one cent per pound; valued about two and one-half cents per pound and not above three cents per pound, five-tenths of one cent per pound; valued above three cents and above four cents per pound, six-tenths of one cent per pound; valued above four cents and

not above five cents per pound, eight-tenths of one cent per pound; valued above five cents per pound, fifteen per cent ad valorem: Provided, that if any country or dependency shall impose an export duty upon pulpwood exported to the United States, there shall be imposed upon printing paper when imported from such country or dependency, an additional duty of one-tenth of one cent per pound for each dollar of export duty per cord so imposed, and proportionately for fractions of a dollar of such export duty."

Under the provision forming the last clause in each of the two sections given above, the United States Tariff Department has ruled that the rebate on timber dues allowed in Quebec is to be regarded as an export duty, consequently pulp or paper made from wood cut on Crown Lands in that province and exported to the United States, has to pay an additional duty of 25 cents per cord on the wood entering into its manufacture. This amounts, roughly speaking, to 25 cents per ton on groundwood, 50 cents per ton on sulphite, and 30 cents per ton on news print. Although Ontario prohibits the export of pulp-wood, and the present United States tariff contains no provision which deals with this restriction, pulp or paper made from Ontario grown wood, in common with that from all other provinces, except Quebec, pays no additional duty.

These are the present conditions.

The amendment to the tariff proposed by the Mann Committee in their report, if adopted, would make radical changes, as a careful reading will show. They recommend that the following be substituted for the existing clauses:

"'Mechanically' ground wood pulp, one-twelfth of one cent per pound, dry weight: Provided, however, that mechanically ground wood pulp shall be admitted free of duty from any country, dependency, province, or other subdivision of government which does not forbid or restrict the exportation of or impose any export duty, export license fee, or other export charge of any kind

whatsoever, either directly or indirectly (whether in the form of additional charge or license fee, or otherwise), upon mechanically ground wood pulp or wood for use in the manufacture of wood pulp.

"Chemical wood pulp, unbleached, one-sixth of one cent per pound, dry weight; bleached, one-fourth of one cent per pound, dry weight: Provided, that if any country, dependency, or province shall impose an export duty or other export charge of any kind whatsoever, either directly or indirectly, on pulp-wood exported to the United States, the amount of such export duty or other export charge shall be added as an additional duty to the duties herein imposed upon wood pulp when imported from such country, dependency, or province.

"Printing paper, unsized, sized or glued, suitable for newspaper and books, valued at not above $2\frac{1}{4}$ cents per pound; one-tenth of 1 cent per pound; valued above $2\frac{1}{4}$ cents and not above $2\frac{1}{2}$ cents per pound, two-tenths of 1 cent per pound; valued above $2\frac{1}{2}$ cents per pound and not above 3 cents per pound, five-tenths of 1 cent per pound; valued above 3 cents and not above 4 cents per pound, six-tenths of 1 cent per pound; valued above 4 cents and not above 5 cents per pound, eight-tenths of 1 cent per pound; valued above 5 cents per pound, 15 per cent. ad valorem: Provided, that if any country, dependency or province shall impose an export duty or other charge of any kind whatsoever upon pulp-wood, wood pulp, or printing paper, exported to the United States, or if any country, dependency, or province forbids or restricts the exportation of pulp-wood, wood pulp or paper to the United States in any way there shall be imposed upon printing paper, when imported from such country, dependency, or province, an additional duty of two-tenths of 1 cent per pound, if valued at $2\frac{1}{2}$ cents per pound or less, and in addition thereto the amount of the export duty or other export charge imposed by such country, dependency, or province, upon the printing paper imported from such country into the United States."

The effect of this is far reaching, and, unless some action were taken by the Federal Government, in conjunction with the provinces, or by Ontario and Quebec independently, only Nova Scotia, New Brunswick, and British Columbia would benefit by the proposed reduction in duty. The product of the mills situated in Ontario and Quebec, the great producing provinces, could only be exported to the United States subject to the present duty of \$1.66 per ton on pulp, and \$6 per ton on news print, Quebec, as at present, being still further handicapped by the countervailing duty before referred to. In order to put themselves on an equality with the other provinces, and so in a position to secure the larger market offered by the reduced duties, it would be necessary for Ontario and Quebec to repeal the restrictions on the export of pulp-wood. This in the present state of public opinion is most unlikely, and in these provinces we will just have to continue to do business under the old conditions as far as the export trade to the United States is concerned.

Until we have put in force proper forestry regulations, it is certainly better to leave things as they are, but if we could with safety withdraw the restrictions, no better move could be made. The wiping out of the duty on ground wood, and the reduction of the duty on "news" to \$2 per ton, in conjunction with proper regulations, would with absolute certainty bring the paper trade to Canada, and we would come into our own.

To those who believe that the only way to bring this about, is to impose by Federal enactment an export duty on pulp-wood, or prohibit its export entirely, this will seem an impossible statement. No doubt the legislation they propose would accomplish the desired result, but it would be by an arbitrary and unnatural measure, entailing, in all likelihood, retaliation and international re-crimination most disastrous to both countries. In international matters, as in business, the natural way is the easiest, and the best business. Instead

of using as a club, the weapon coming first to hand, we should endeavor to find out if it is not possible to accomplish the same thing in a way which will eliminate all friction, and, more important still, cause no interruption to the business of a most important industry.

Let us first put in force regulations which will absolutely prevent reckless cutting, reduce fire waste to a minimum, and provide for a definite system of re-forestation. Make these apply to private as well as Crown Lands, which can be done. This would cost money, but the price of pulp-wood could stand an advance to cover it.

The freight rates now in force on pulp-wood, for long hauls, are much too low. The American mills pay less freight, in proportion to their distance from the source of supply, than mills in Canada. Increase the long haul rates so as to put the mills on both sides of the line on an equal footing.

A cord of pulp-wood weighs on an average 4,000 pounds, so does a ton of ground wood shipped at 50 per cent. dry, while a ton of paper weighs just 2,000 pounds. How long will paper mills, which have to get their raw material in Canada, continue to pay freight on a ton of water for every ton of wood or pulp they get? Given free entry of paper, or a nominal duty on it, the freights will bring the mills to their base of supplies. The desired result will have been accomplished without friction, and without interruption to business.

Should the United States maintain their position, and only remove or reduce the duty, when we remove the restrictions now existing in Ontario and Quebec, could we not safely remove them, after we had put in force regulations which would fully protect and perpetuate our forests and water powers?

Further, if the present restrictions were to be removed, it should be possible to make this contingent on the including of sulphite in the free list, and a provision that the removal or reduction of duties would apply to Canada only,

which would greatly increase their value to us.

The prohibition or further restriction of the export of pulp-wood, could not fail to result in retaliation of some sort, which would naturally be aimed at the pulp and pulp-wood trade, and while this would no doubt injure the United States as much as it would us, it would be most disastrous to those mills in Canada, which depend almost entirely on the United States for a market for their product. In spite of our natural advantages, the pulp and paper industry in Canada is not overburdened with surpluses and can ill stand a setback, such as it would receive if a tariff war were declared between two countries so intimately connected as these are in this business. What we want is not trouble, but paper mills; let us get them the easiest way we can.

The subject is a large one, and cannot be fully dealt with here. The commission appointed by the United States Government has devoted some eight months to a most exhaustive examination and consideration of the problem as it exists in that country. Their proceedings contain over three thousand pages, and are replete with information, forming perhaps the most valuable contribution to the subject yet made. Would not a similar commission appointed by the Dominion Government obtain information of even greater value to us in Canada? An investigation of the whole question is only possible by a Government commission, and surely the subject is of sufficient urgency and importance to justify an immediate appointment.

"Conservator."



PAPER CUTTING MACHINES.

Guillotine knives are a dear item and should naturally be made to last as long as possible. The sharpening plays an important part, and requires care and skill. The cutter consists of steel rolled on to iron, and so soon as the steel is

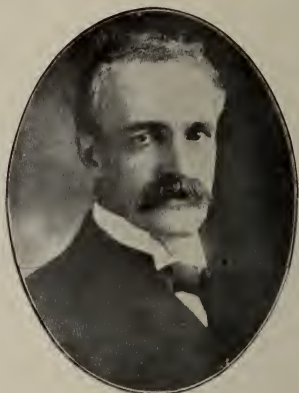
got through the knife becomes useless. The improper way of sharpening is hollow grinding like a hollow-ground razor, as this tends to make the knife spring. The best way is to entrust the sharpening to the maker of the machine where possible, as he naturally has the interest to see it work as efficiently as possible, in order to please the customer. It does not matter whether the knife is sharpened on the sandstone or by means of emery cylinders so long as it is done properly. Both methods can yield equally good results. Sharpening with emery discs is, however, to be avoided, as it produces a hollow face, which may lead to the breaking of the knife. An edge should be given after the grinding by rubbing on it a piece of a fine hone stone charged with oil. This should be done with a skilful hand. For tissue or cigarette paper the knife should have a slender face, whereas for collotype paper and light crumbly cardboard, a slightly hollow face is an advantage. For pulp board and relatively strong material one should make an arched cut, in order that the face of the knife may withstand such hard material. Many practical men help the cutting by rubbing the knife from time to time with a mixture of paraffin wax, stearine, beeswax and Carnuba wax. For materials which cling such as chromo paper and chromo board the knife should be changed instead of attempting to work with a blunt one.



GIFFORD PINCHOT.

Gifford Pinchot, whose name is so much in evidence in connection with his position as Chief United States Forester, and with many plans for the conservation of natural resources has, since his young days, taken a particularly keen interest in forestry matters. Perhaps this was inherited from his father for the latter, at a time when interest in this matter in the Republic was but slight, founded the Yale Forest School and Yale School

of Summer Forestry. His son Gifford devoted himself to a course of training which made him one of the most accomplished foresters in the world. After studying the question in France, Germany, Switzerland, and Austria, he entered upon practical work on this con-



Gifford Pinchot.

continent. His life—which, in unison with that of his friend, President Roosevelt, may certainly be described as belonging to the “strenuous” order—is a remarkable illustration of what may be done by concentration of energies, and by utilizing every moment to best advantage.



DEPRECIATION OF MACHINERY.

Jas. Darbishire recently read before the Institution of Mechanical Engineers, New York, a paper upon the important subject of how much should be written off in consideration of the gradual deterioration of machinery.

Systems, he said, now govern general office, drawing office and works, from the filing of correspondence onward, and no modern business can be economically carried on without them. They are the result of careful study of the requirements common to all engineering establishments, and the fact that they are systems points to a general consensus of opinion that what is good for one is

good, with modifications, for all, and that certain definite principles are applicable to all cases.

It therefore appears strange that the method of dealing with the wear and tear, repair and renewal, and depreciation of plant and machinery, has escaped attention, and that there seem to be as many different ways of treating this question as there are engineers—or, perhaps it should be said, as there are accountants.

Probably life must always be a matter of opinion, but the development of mechanical engineering is now so rapid that it would certainly be unsafe to anticipate for the machinery of to-day the life of that of fifty years ago. For example, machine tools fifty years old may be very interesting and still capable of doing work, but their use is not conducive to commercial success, and it will not do to look forward to following the practice of previous generations in keeping old machinery at work.

The importance of properly estimating probable life will be apparent when depreciation is considered, and it is in this that the engineering skill and experience of the works manager, or the special plant engineer, will have his opportunity. The matter seems to have had no consideration whatever in the past; but a short time will suffice to produce plenty of men with the experience necessary to form a sound judgment on the probable life of any machine—that is, on the chances of its becoming obsolete by the arrival of new methods of working, and also of its wearing out in use.

It is sometimes argued that if machinery be maintained as indicated above, it does not depreciate, and that, so long as its output does not fall off in quality or quantity, it is as valuable to its owner when ten or twenty years old as when new. This, however, is absolutely incorrect, for although a machine could, of course, be kept "alive" forever by renewing its parts one by one as they wear out, supposing that it never grew obsolete, its value at any given time would

depend upon the state of deterioration of its various parts at that time, because since each part has a "life," the effluxion of the life of that part is proceeding from day to day. But machines do grow obsolete, and are not renewed in this way; and the depreciation now to be considered provides for that effluxion of life of each machine as a whole which actually takes place, the amount depending upon the time which a machine can be profitably used for the purpose of producing the output required by the works in which it is installed, this being its "life."

It is therefore absolutely necessary to make provision for a fund by means of which the various items of a workshop equipment can be renewed from time to time, which provision obviously has to be made without any reference to the profits or losses of trade. It must be made as part of the working expenses of the business, and in this respect the author protests against the system, frequently adopted by accountants, of showing a so-called "profit," out of which so much is set aside for depreciation, the account apparently being at the discretion of the directors or the accountants, and frequently depending upon the amount of the so-called "profit." It is clearly wrong to make the provision for depreciation a charge on profits, for depreciation is really a loss of the capital assets, which has to be made good out of income, and is just as much a charge on revenue as rent or taxes; there is no escape from its incidence, and there is no profit until adequate provision for depreciation has been made. That the provision should be adequate goes without saying; the amount must be determined without reference to the result of trading, but must be an absolute charge, so that the depreciation may be truly representative of the loss of value of the machinery, which occurs whether trading is profitable or not.

The danger of under provision for depreciation, and especially of allowing the amount to depend upon the results

of any year's trading, is that in lean years what ought to be set aside for depreciation may be entirely or partially distributed in dividends, which is nothing more or less than paying dividends out of capital. This may be done in the expectation of better times to come, when the depreciation deficiency may be made up; but it is quite unsound, and in many cases has brought about the results which might have been expected. Even now there are too many works equipped with machinery which is so out of date as to be a serious handicap in manufacturing, but which cannot be thrown away and replaced because past years have not provided the means to meet the expense. To raise fresh capital for this purpose, even if feasible, is absolutely unsound finance, for the new machinery has to produce sufficient to provide interest on the lost capital as well as on the new.

In fact, overvalued machinery is one of the most dangerous enemies to financial safety; it would be far better to distribute less and set aside more for depreciation, than to live in a "fool's paradise," and awake to find that the time has come when machinery must be modernized to meet competition, and that the funds to do this are non-existent.



AN AUSTRIAN CIGARETTE PAPER MILL.

"The Papier Zeitung" publishes an account of a visit to Piette's tissue paper mill at Freiheit, in Bohemia, which contains some interesting details.

The rags, only the strongest sorts of which are suitable, are boiled in revolving boilers which automatically blow off a small amount of steam at every revolution, by an arrangement which has proved itself so satisfactory in assisting circulation that it has been fitted to all the boilers in the mill. The rags are not rinsed in the boilers, but are transferred direct to special washing engines, from which they are delivered to the

breaking engines, where they are converted into half-stuff. The half-stuff is delivered through a pipe into the bleaching engines, consisting of cement troughs lined with glazed tiles, and is finally discharged into the presse-pate chests. Bleaching tanks and draining chests are not employed, as the utilization of the bleach is considered to be more economical when the stuff is kept in motion, and draining cheses are considered to afford opportunities for the introduction of dirt and impurities into the stuff.

Thus, in the ordinary course, the stuff is not touched by hand from the time the boiled rags enter the washing engines to the time when the bleached half-stuff is delivered as a continuous sheet from the presse-pate. But in the case of some of the coarser linen rags the ordinary bleach is not sufficiently powerful to remove all the sheave, and the half-stuff from these rags is submitted to a light treatment with chlorine gas, which softens the sheave sufficiently to permit of its removal. The beater room contains a very large number of beaters, most of them ordinary hollanders, but some with independent circulation; also a Cooke-Hibbert beater refiner and a Marshall refiner. The two last are only used for the thicker sorts of tissues. All the half-stuff is subjected to a preliminary beating operation for a very long time, and is then discharged into special hollanders for the final beating. In the case of the thinnest cigarette papers the preliminary beating lasts for twenty-five hours, and the second beating for fifteen hours. Only by thus brushing out the stuff very slowly can the extreme strength which is necessary for the filigraning operation be imparted to the paper. The pulp goes through rotary strainers to the machines, one of which is fitted with three ordinary drying cylinders and a Keiser's air drying apparatus. The latter consists of six heated cylinders over which the paper is led without actually coming in contact with the heated metal. The automatic take-off, by means of a top felt from the

couch roll, is not now used; the paper is led by hand in the ordinary way. The paper is reeled at the end of the machine, and is subsequently slit into narrower reels. These reels may be cut into sheets or may be further slit on a special bobbin machine into narrower strips.

The use of cigarette papers in sheet form is dying out, and the narrow bobbins are more in request. The daily production of the mill represents 90,000,000 cigarettes. Before going to the bobbin machine the paper is "filigraned," i.e., impressed with an artificial watermark. Each design requires a specially engraved steel calender roll, which runs in contact with a paper calender bowl and impresses the design on the tissue paper passing between them. These engraved rolls are changed and hoisted into the calenders by traveling cranes. Seven filigrane calenders stand in a row in front of seven bobbin slitting machines. Glazing calenders are very seldom used on cigarette papers.

Piette's mills also manufacture dyed tissue papers. The white tissues are passed through dyeing machines and patented by the firm. The paper is wound through a bath of dyestuff, the excess of color is squeezed out, and the colored paper is dried on hot cylinders. Four of these machines are installed, and two of them are fitted with creping machinery. There is also a machine for coloring paper on one side only.



OTTAWA PULP AND PAPER CO.

An application has been made in the weekly high court to allow the liquidator of the estate of the Ottawa Pulp and Paper Company the right to defend an action brought against the estate by the Riordon Paper Company of Montreal. Permission to do so was granted and the case will be tried at the next regular session of the High Court. The account is for \$850 for screenings bought from the Montreal Company which the

liquidator claims was not of the quality agreed upon. The action for the \$850 came up in the local master's office a short time ago, and speedy judgment was given on the ground that the Ottawa Pulp and Paper Company did not put in a defence. The next day the Ottawa company went into liquidation. Its assets will be sold on March 11th. They include the patent rights of Mr. Cornell, who unfortunately for himself did not provide in his contract with the owners of the company that these rights should revert in case of insolvency. Cornell's share in the concern amounts to 40 per cent., but he could not save the enterprise from going to the wall although he believes it should pay. It is a composite plant for refining ground wood and sulphite fibre screenings. The patents cover machinery and process for refining the screenings of the pulp mills. The mill is in actual operation and the business will be sold as a going concern. Raw and manufactured stock varies from day to day, but the amount on hand on the day of completion will be taken over by the purchaser at 80 cents on the dollar of the inventory prices.



PULP POLICY IN QUEBEC.

Premier Gouin, of Quebec, in a forecast of that Government's policy for the coming session made these remarks about pulpwood:—

"We shall pursue the same policy of progressive development of our national resources in the future as in the past. Our national wealth is enormous. It must be developed, but it must also be protected. One of our greatest assets is to be found in our rich forests of pulp wood. The question of how best to protect it for the benefit of our own province and of our own people is an interesting and important one, which affects the prerogative of the federal as well as of the provincial authorities. I have discussed this matter at some length quite recently

with the Prime Minister of the Dominion, and it is more than likely that at a near-by date a commission will be appointed to deal with the whole question, and to report all the information that can be collected on the subject."



BRITISH IMPORTS OF PAPERMAKING MATERIALS.

The following figures show the total values of the British imports of paper-making materials during 1908 and the two preceding years:—

	£
1906	3,935,409
1908	4,610,892
1907	4,363,297

There was last year, compared with 1907 an increase of £247,595, and an increase of £675,483 compared with the previous year.

The official classification of the imports during the three years shows the following:—

	Tons. 1906.	Tons. 1907.	Tons. 1908.
Wood pulp ..	606,811	672,499	748,419
Esparto	188,192	202,523	192,975
Rags	22,246	20,038	15,535
Other materials			
	£	£	£

Wood pulp...	2,915,209	3,312,347	3,625,803
Esparto ...	677,055	738,834	739,931
Rags	216,660	206,153	157,680
Other matrls	126,485	105,963	87,478

—“World’s Paper Trade Review.”



PAPER MYSTERIES.

Paper “mysteries” are pleasant things to attempt to make clear, and amateur detectives who have not the practical means of discovery at hand enjoy making theories and advancing them. A

client once wrote to an analyst much as follows:—“One of our customers complains that our paper turns yellow after being mounted on cardboard. I am sending you a sample of the glue used for sticking and should be obliged if you would say if there is any acid in it that would turn the paper yellow.”

The analyst examined the glue, found it in order, and reported to that effect, and remarked that he could not go further with the matter unless he received some of the paper affected.

His client replied, “I am sending you a piece of the paper, not that actually discolored, but exactly the same quality, and shall be glad if you can find anything in the glue to discolor the paper.” The client was evidently “down” on the glue and anxious to prove something.

The analyst examined and experimented with the paper and glue, but could not get any yellow discoloration, and reported accordingly; adding that he had better see a piece of the paper actually discolored. The real thing came. It was a printed card and yellow marks streaked the face of it, and the analyst smiled as he saw that the ink used was of the aniline order, and that some alkali had come in contact with the dye and had discharged the color. Neither glue nor paper had anything to do with the case. — “Paper Makers’ Monthly Journal.”



—The Canadian Boomer and Boschert Press Company, Limited, 1040 St. Catharine Street East, Montreal, is building the pulp presses for the new mill of the Anglo-Newfoundland Development Company at Grand Falls, N.F.; also an outfit for the East Angus mills of the Brompton Pulp and Paper Company. The company recently furnished the pulp pressing and baling outfit for the North Shore Power, Railway and Navigation Company at Clark City, Quebec. The presses are of 600 tons capacity.

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WANTED BY SWEDE.

Swedish gentleman is open for engagement in Canadian mill. Experienced in Swedish processes of pulp and paper-making, and has worked on Kraft papers. Understands sulphate method and recovery of waste from sawmills for pulp purposes. Is capable of constructing sulphate pulp mill for bad wood, wastes, etc. Address Box 10, care "Pulp and Paper Magazine," Toronto, Canada.

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THE SHAKE ON THE PAPER MACHINE.

In an article on this subject in the *Wochenblatt fur Papierfabrikation*, the writer points out that the shaking of the wire on the paper machine is of the same primary importance to the structure of the sheet as it is to papermaking by hand. The clear "look-through" of the paper depends almost entirely on the proper adjustment of the shake to the condition of the pulp. As a general rule a rapid shake impedes the draining of the water from the pulp, whilst a slow, long stroke accelerates the draining. Consequently, for papers in which a clear "look-through" is desired, the water must be held up as long as possible on the wire by shaking with a short, quick stroke, so that the fibres may have plenty of time to adjust themselves in a uniform structure.

Of course the treatment in the beater remains the dominating factor in producing a close, clear paper, and if this be at fault it can only be partially corrected by adjusting the shake. On the other hand, even correctly beaten stuff will give a wild-looking paper if the shake be wrongly adjusted. If the stuff has been left slightly too long in the fibre in the beating process, a clear sheet can still be obtained if a large amount of diluting water be used and the shake adjusted so as to retain the water on the wire as long as possible. In such a case it is desirable that a slight vibration of the stuff on the wire should be visible up to about 20 inches from the first suction box.

If the papers are required to possess a certain amount of strength, as for in-

stance, book papers, it is necessary to keep up the length of the fibres in the beating, and in such cases an absolutely clear "look-through" should not be expected and the paper will be somewhat cloudy. It is possible, however, by adjusting the shake to make the "look-through" either more cloudy or less cloudy according to the requirements of the consumer.

The most useful type of shaking arrangement is the flat disc pattern with friction disc, which can be regulated whilst the machine is running. The frame which carries the register rolls and which receives the shakes must be of absolutely rigid construction. In machines with extra long wires it sometimes happens that the frame is not sufficiently rigid to transmit the rapid strokes of the shake instantaneously from the breast end to the pivot, and the result is what is known as "false" or "dead" shaking. The side girders of the frame then vibrate as springs in opposite directions, and the shake is not efficiently imparted to the stuff on the wire. The true remedy for this defect is to replace the frame by a stouter one, but a partial relief may be obtained by stiffening it up, by bolting lengths of iron piping underneath the wire to the two sides of the frame.



CONTRACTIBLE PAPER SHAFT.

An invention has been made relating to improvements in contractible shafts, the object of which is to provide an exceedingly cheap and simple form of shaft particularly adaptable for winding paper on roll and which releases after the roll has been wound thereon by reducing in diameter, thus being readily freed from the roll.

It constitutes essentially the shaft having a movable section, and means operable from the end of the shaft for freeing said movable section and allowing it to move inwardly.

This shaft will be found of great use in paper mills, for when solid shafts are used to roll the paper on, they frequently bind and it becomes necessary to destroy the whole roll of paper in order to free the shaft. The application of the contractible shaft, however, is not limited to paper rolls, but could be used wherever the function of the reducible diameter could be used to any advantage.

The following claims are made respecting the invention:—In a contractible shaft, the combination with the shaft having a longitudinal slot therein, of a rod in the bottom thereof having apertures therethrough, means for actuating the rod from the end of the shaft, recesses in the bottom of the slot in the shaft below the apertures in the rod, outwardly movable sections located in the outer part of the slot in the shaft, pins secured thereto, extending through the apertures of the rod, and into the recesses in the bottom of the shaft, and having slots in their extremities, and pins extending transversely across the recesses in the shaft and through the slots in the said pins, as and for the purpose specified.

The appliance is being put on the market by The Contractible Shaft Company, and among those interested are Dr. J. F. Demers, Levis, Que., and E. E. Cinqmars, Hull, Que.

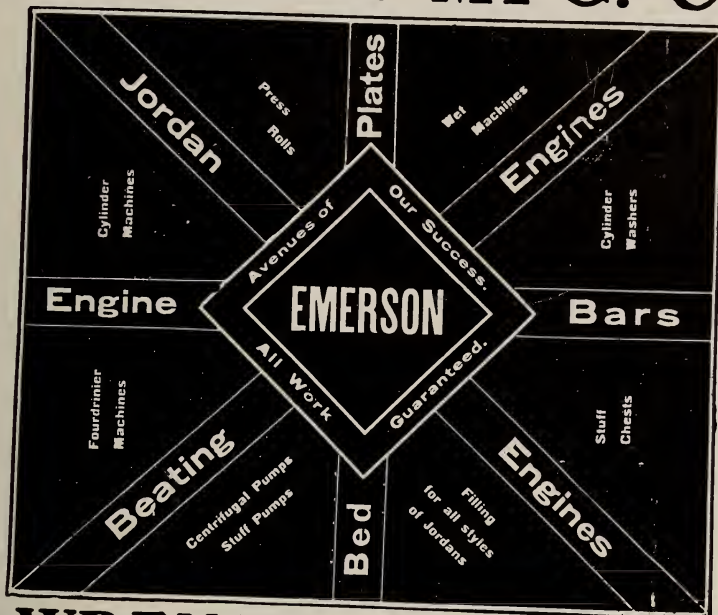


CANADIAN MARKETS.

Toronto, March 6th.

The several rains and snowfalls followed by thaws have had a very considerable effect on the views of manufacturers of pulp. Market prices are much easier, and the indisposition of mills to contract for more than a month or two ahead has become much less marked. Unless something strange happens, a fair quantity of water seems assured, at any rate until the season of the not infrequent summer drouths returns.

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As a result, prices for ground wood promise to be almost down to the average of a year ago, though a good many think the general quotation for the year is more likely to range a dollar or so higher. In the East the mills seem more anxious to sell than in the West. However, there is no excess of pulp above market requirements in Ottawa. The price for mechanical may be given as at between \$16 and \$20 according to location. Large quantities of pulpwood are still available in many sections, as a result of the slump fifteen months ago; whether prices will become firmer when this has become exhausted, remains to be seen. Sulphite pulp is quoted at around \$1.85 f.o.b. mill. Prices in Scandinavia are low which prevents any great firmness in this class of pulp.

In the paper trade, business continues fair, and has picked up seemingly rather better than has been the case in the United States where the improvement discernible in December can scarcely be said to have continued growing.



BRITISH MARKETS.

"The World's Paper Trade Review" reports that the market for chemical wood pulps is very quiet. There is not much business passing in mechanical wood pulp. Prompt, for which there has been more inquiry of late, is reported scarce.

Market for esparto dull, and any movement in prices is rather in buyers' favor.

The demand for home rags shows an improvement, particularly for the cheaper qualities.

For foreign rags the market shows little change. According to our Belgian correspondent, there is a little more demand for the lower grades and bagging.

The market for waste papers is reported firm. There is a steady demand for Animal Sizing, and the tendency of prices is in an upward direction.

Best grades of China clay and terra alba are moving freely, at firm prices;

the cheaper kinds are somewhat neglected. French chalks and bauxite fairly steady. Some of the mineral white works are closing owing, it is alleged, to the unprofitable character of the business; at other establishments wages are being reduced.

Chemicals.—Trade continues quiet. Ammonia alkali, 58 per cent., is quoted £4 10s.; bleaching powder (soft wood), £4 5s.; caustic soda, 76-77 per cent., £11; soda crystals, £2 17s. 6d.; salt cake, £2; recovered sulphur, £5.



—A bill has been introduced into the United States House of Representatives appropriating \$30,000 to enable the Secretary of Agriculture to conduct experiments as to the practicability of making paper out of cornstalks, and authorizing him to purchase a site, erect buildings, and purchase and install apparatus to that end. It is provided that the site is to be at or near Henderson, Ky.



NEW USES OF SAWDUST.

In view of the importance of wood as a raw material of the paper industry, interest attaches to the various applications of its sub-products, and in the first place of sawdust. The *Moniteur de la Papeterie Francaise* states that a board suitable for insulating purposes can be made from a mixture of sawdust with tar, rubber, etc. Pipe joints can also be made of these components. The sawdust is first mixed with a raw linseed oil, or a siccative oil, so as form a thick paste, which is then laminated in the form of a cardboard. Other uses of sawdust are for packing, filtration, etc., as well as for cleaning floors after it has been mixed with spirits of turpentine. Sawdust, by the addition of glue, can be made into a hardened wood, suited for moldings and like purposes.

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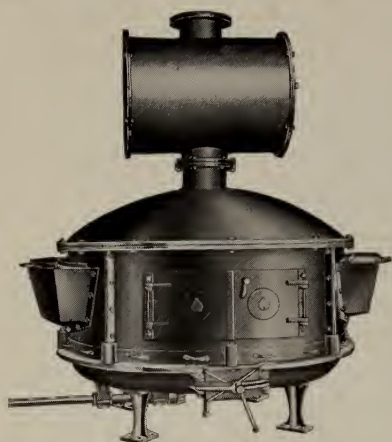


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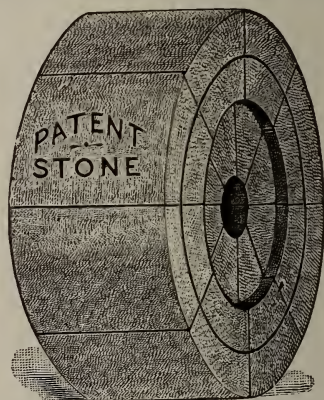
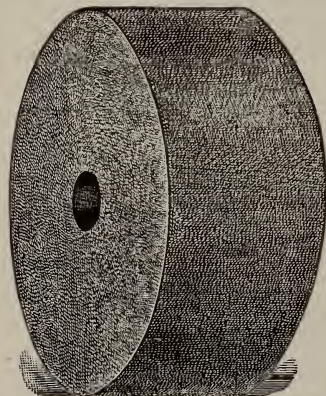
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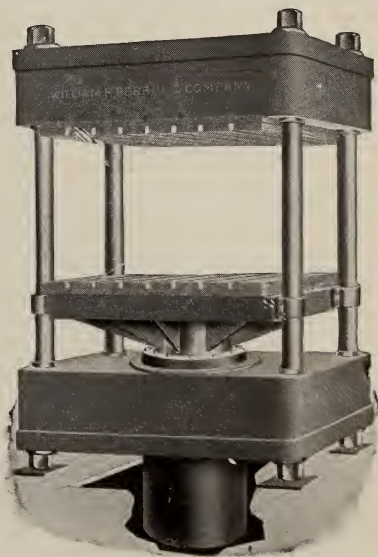
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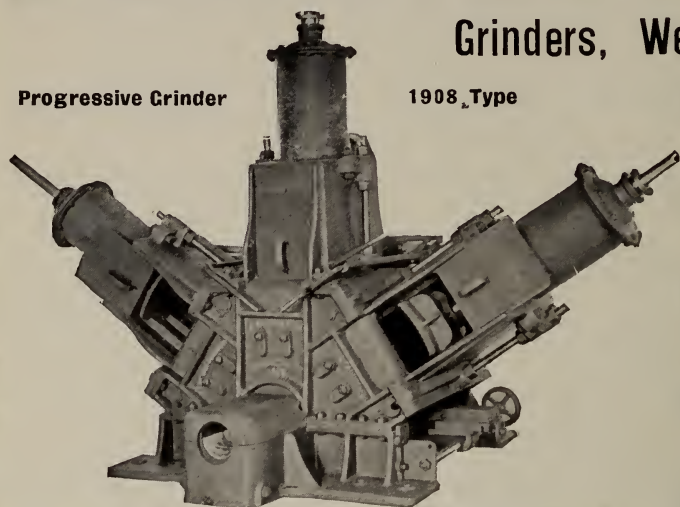
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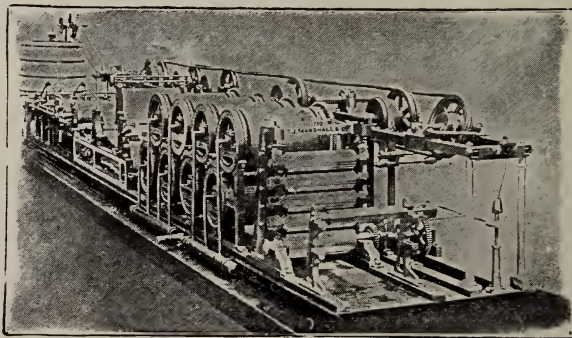
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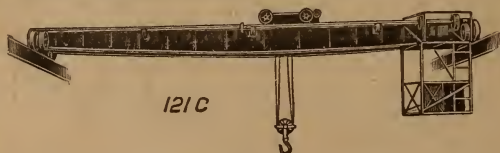
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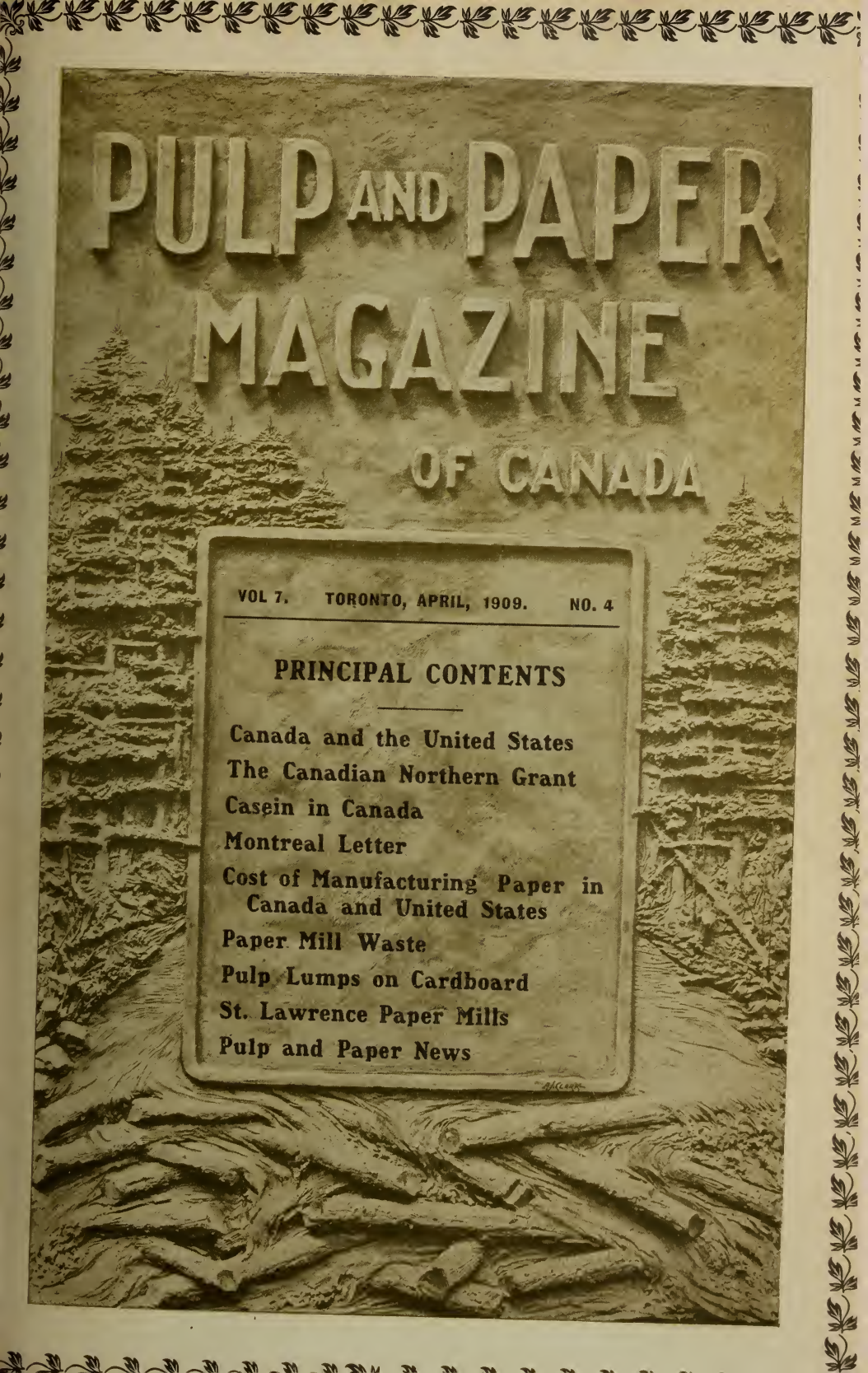
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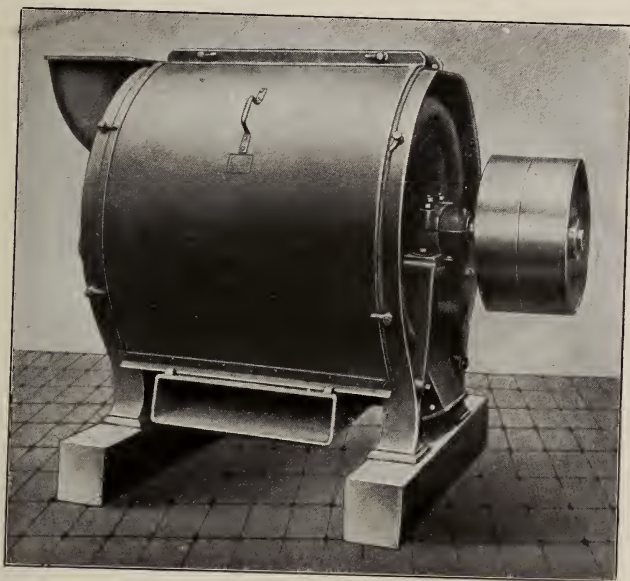
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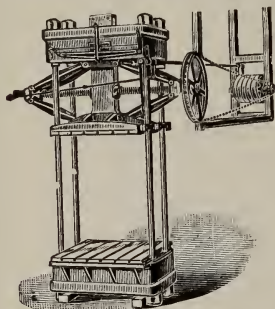
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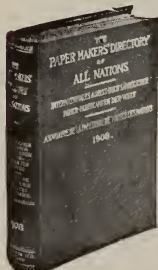
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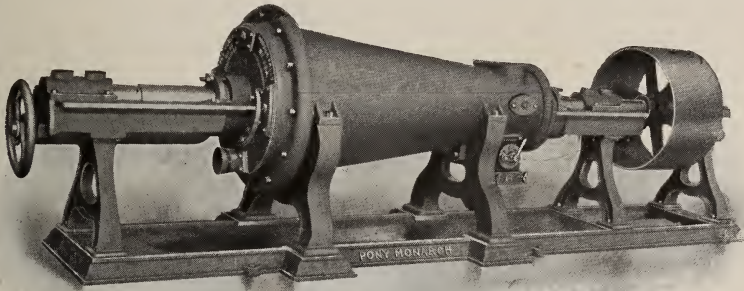
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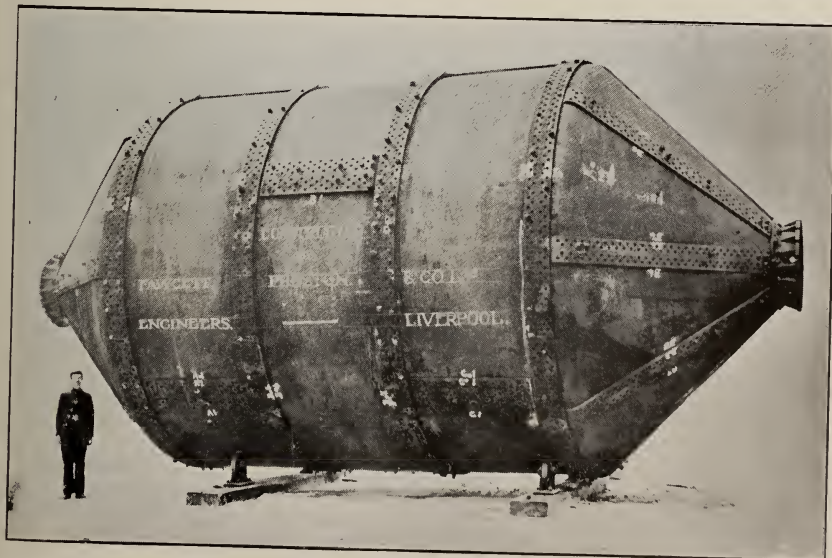
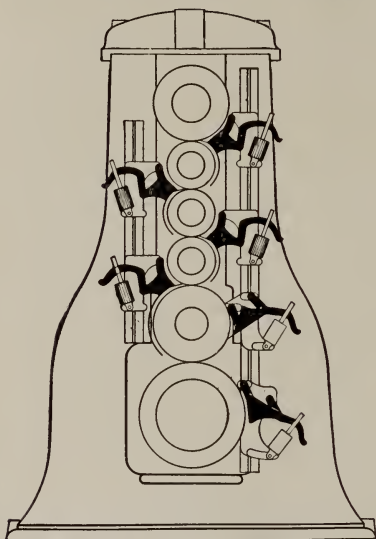


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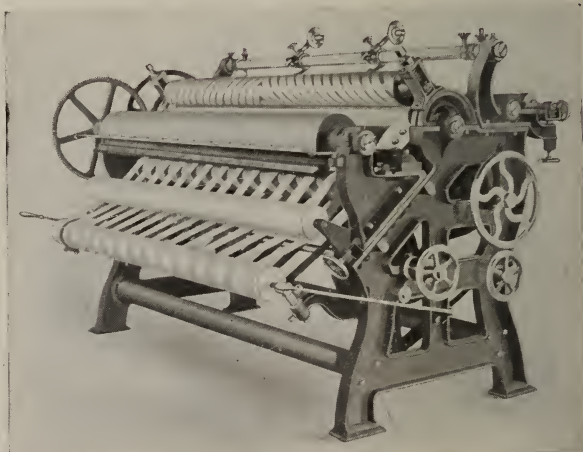
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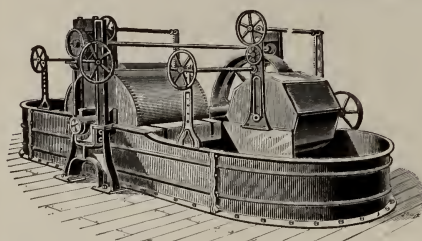
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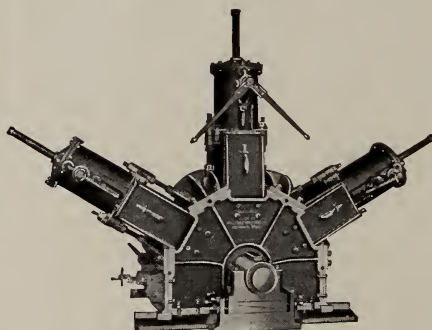
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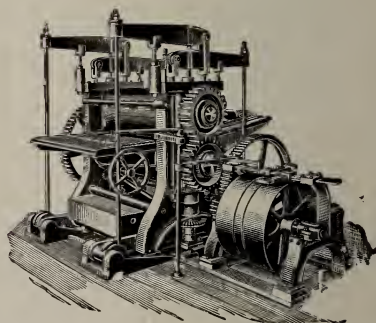
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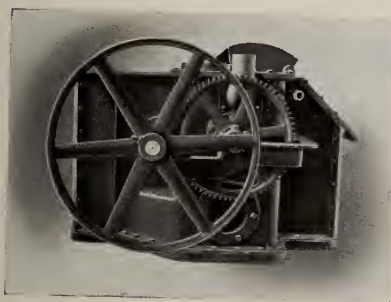
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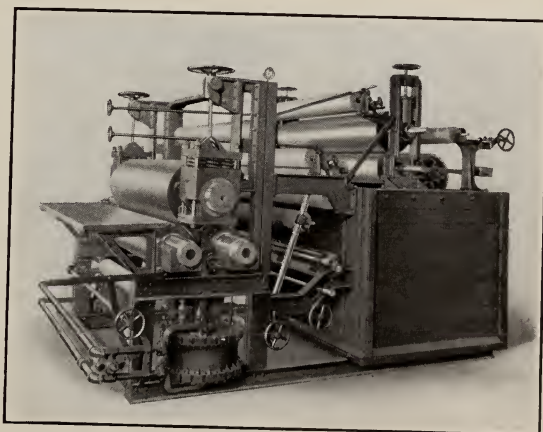


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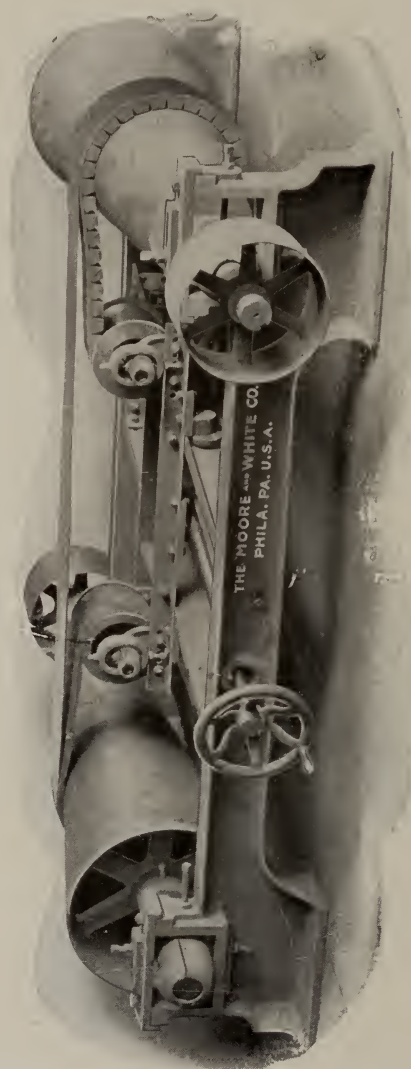


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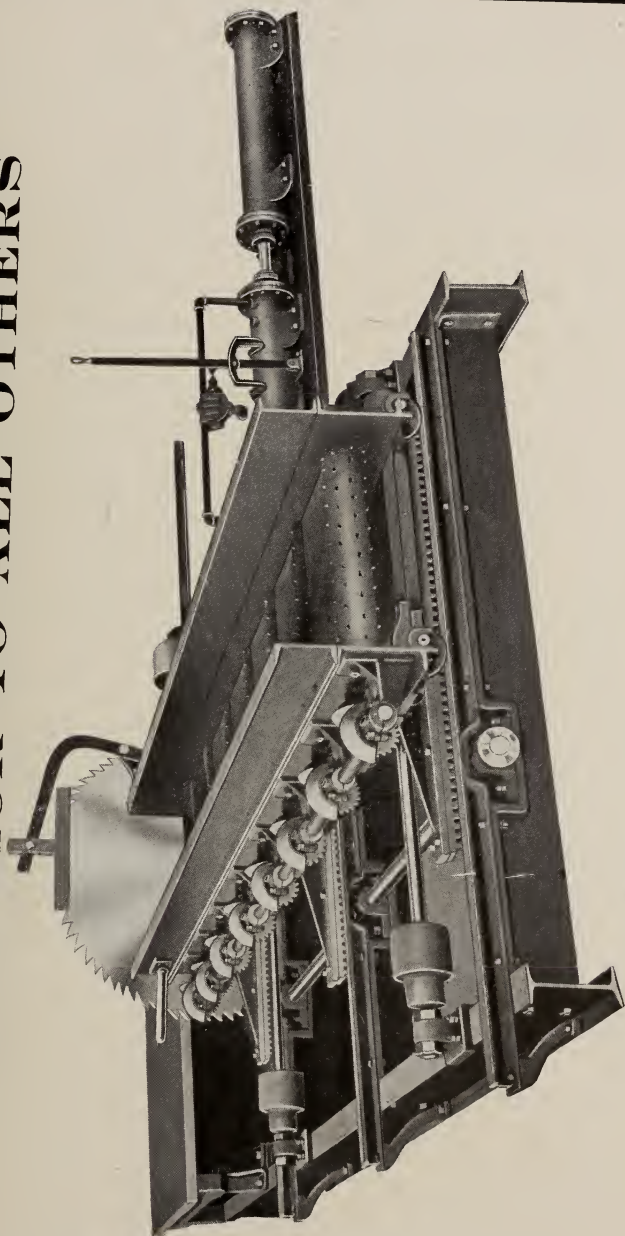
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 4.

TORONTO, APRIL, 1909.

{ \$1 A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.,

PUBLISHERS

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

CANADA AND UNITED STATES.

Paper-makers in the United States are undoubtedly seriously anxious about the probable effects upon their industry of the new tariff, which has just been passed by Congress. Mr. Hastings, president of the American Paper and Pulp Association, does not mince his words in expressing the opinion that cheaper paper, i.e., paper under a reduced tariff, means, first, forest destruction in the United States, because limit-holders would then find it policy to use up the domestic pulp-wood resources as unreservedly as possible, thus reaping profits rapidly without thought for the future; and, secondly, it means the dependence of newspapers upon Canada

for their supply of paper and the manipulation by Canadians of the paper supply for their own benefit. One way Mr. Hastings indicates in which this could be done:—

“The select committee's report recommends a duty of only \$2 per ton on news print paper to apply to any Province of Canada which does not discriminate against us in the export of pulp-wood. The Province of Quebec at present charges us 25 cents more per cord for stumpage upon wood exported than her domestic manufacturers are charged. There is nothing to prevent the Quebec Government raising the stumpage charge to the same level for both home and foreign consumption by abolishing the rebate of 25 cents per cord paid to the Canadian consumer, thus assuring to the Canadian manufacturer a reduction of \$4 per ton in the duty on paper, or a net gain of \$3.67½, as a cord and a half of wood will make a ton of paper. By then increasing the stumpage tax by this amount of \$3.67½, the Quebec Government could absorb all of the benefits from our reduced tariff, resulting in a corresponding increase in the cost of paper in this market. In our opinion another defect in the proposed arrangement is that it does not finally settle the question of getting cheap wood from Canada, because while

Canada might for the time being avail herself of the reduced duties, the penalties for shutting us off from getting wood are so insufficient as to leave it open to her or any of her Provinces at any future time, when the industry has been firmly established in Canada and weakened here, to resume interference with exports of wood, paying the higher duties on pulp and paper, and thus increasing their cost to the American consumer. Another objection is that if Ontario elects to maintain her prohibition of the export of wood, she will remain in exactly the position in which she is now, which appears to be perfectly satisfactory to her paper and pulp manufacturers."

As to the feeling in Canada regarding the new American tariff on pulp and paper, the general opinion seems to be that there is no special call for this country to act in the premises. The United States is presumed to be following the very natural course of looking after her own interests, and it is the duty of Canadians to look after those of their own country by conserving their pulp-wood resources by the best means available. This spirit involves no manner of enmity towards the paper manufacturers of the United States, with whom, in their present straits their confreres here have every sympathy. The chairman of the United States Tariff Committee, in announcing the proposed pulp and paper schedule, stated that one object its framers had in view was to help out a neighbor who possessed considerable quantities of spruce of little or no value except when shipped across the line.

Our neighbors are to be thanked for their friendly intentions, but it is sig-

nificant that, while in the schedule first proposed mechanical pulp was only to be admitted free of duty into the United States when coming from a Province which imposed no restriction, and that in the latter case it would have to pay a duty of one-twelfth of a cent per pound, this proviso was at the last moment expunged, so that mechanical pulp is to go in free under all circumstances. This would certainly appear to manifest a distinct recognition that the United States is dependent on Canada, willingly or unwillingly. There is a plain feeling on the part of some prominent in the pulp trade in Canada that if the United States really wished to make a friendly deal with Canada, they might have so framed their tariff on pulp and paper as to make it apply to Canada alone on a reciprocal basis. Then Canada would have known how to look at it and could act accordingly. As it is now, one cannot help feeling that the present is another attempt of Uncle Sam to bulldoze Canada or its several Provinces into line with his own desires by holding the big stick in near proximity to their immediate interests as distinct from their best future development.

It is scarcely likely that hopes of this character will be realized. Certainly in Ontario one can trace no indication of probability that the prohibition of pulp-wood export will be abrogated. Even if the Government or people were willing, there are so many tangible obstacles of a legal or other kind in the way in the shape of standing arrangements with present concessionaires that the question becomes one almost outside the realm of practical politics. In Quebec Province the odds are that the example

of Ontario, or something similar, will be followed rather than a contrary direction.

The new tariff is not without some apparent inconsistencies. While mechanical pulp is placed on the free list, sulphite still retains the old rate of duty. Yet in the manufacture of sulphite pulp almost twice as much wood is used. One feature which is apt to make the new law unsatisfactory to our neighbors is of a sectional character. For example, if Quebec were to abolish its 25 cent discrimination against pulp-wood shipped to the United States, she would have the privilege of shipping in paper there at a \$2 duty. A Western manufacturing concern, say, in Wisconsin, owing to transportation charges, would not be able to get wood from that Province, but would have to compete in prices with paper made either there or in a near State which could take advantage. Hence, there would be discrimination as between State and State, according to its geography.



THE CANADIAN NORTHERN GRANT.

The usual differences of political opinion exist as to the wisdom of the Ontario Government's recently announced grant of 4,000 acres per mile for the proposed new Canadian Northern Railroad from Sellwood to Port Arthur. The Opposition's main objection is that the line would be built in any case, grant or no grant, as it is a necessity wherewith to connect the eastern and western sections of the Canadian Northern systems, and that, therefore, the grant is a waste of the people's assets. Against this it may be justly urged that, while no

doubt the resources of that region would have been developed sooner or later, yet time is an important factor, and that something can with propriety be sacrificed for the sake of reaping that development sooner rather than later.

The clay belt, through part of which the road would run, is estimated to contain something like 16,000,000 acres of land, and many claim this land is as good as the Manitoba prairies for the production of crops. The Government retains certain powers as to the selection and treatment of the settlers who take up land along the railroad. Another feature which gives special interest to the deal between the Ontario Government and the Canadian Northern is the abundance of pulp-wood along the proposed line. A report made by the surveyors who traversed that country in 1900 is that in several districts there is an abundance of spruce and pulp timber, poplar mixed with spruce, tamarac, cedar and red pine. The Hon. Mr. McKay, leader of the Opposition, in commenting on the vastness of the Government's gift to the railroad interests, estimated that on much of the land to be granted there were 20, 30, 40 or sometimes even 60 cords per acre of pulp-wood, or including the value of the land, something like \$52,000 per mile of railway.

We do not quite understand the Government's policy in this matter, seeing that Sir James Whitney has affirmed on more than one occasion that his Government would under no circumstances make land grants to railway companies. Looking at it, however, purely from the standpoint of the pulp interests there can be no doubt of the importance of the development that is likely to ensue at an early period.

CASEIN IN CANADA.

Some interesting particulars of the chemistry of casein will be found on another page in this issue. Casein, as is generally known, is the chief constituent of the solid portion of milk, after the butter has been made. In view of the high position of Canada as a dairying country, it is somewhat surprising that arrangements have not been made long ago for the manufacture of this substance, so important for the sizing of paper, in large quantities. We understand that a gentleman, probably representing American interests, has recently been making close inquiries as to the possibilities of establishing such an industry in the chief dairy districts of Ontario; and the much talked of change (or rather possibilities of change) on the part of the factories from cheese to butter-making would conduce to this end. One obstacle to any considerable manufacture of casein as a by-product in Canadian creameries is the growing use by farmers of individual separators, instead of having their cream separated in large quantities at the factory as in former years. This renders them less than ever disposed to allow the skim milk, which contains the casein material, from leaving the farm, as, of course, it forms a valuable material for the feeding of pigs, calves and other young stock. It also militates against uniformity of manufacture in comparison with the conditions which would exist if the separation of cream were carried on entirely by the factory, each farmer having a more or less different method of carrying out this process. In the United States, where one company practically controls the manufacture of casein, there is a duty of 10 per cent. against importations, but there is not nearly enough

produced for home consumption and large quantities come in from the Argentine Republic. We believe Prof. Harcourt, of the Ontario Agricultural College, is looking into the casein question with a view to looking into its possibilities as a Canadian industry and it is to be hoped that the farmers will be able to make use of this valuable by-product as a noteworthy adjunct to other profits.



—If, as we are given to understand, Austria, Sweden, Norway and Finland all prohibit the export of pulp-wood, the Dominion Government cannot plead lack of precedent for a step which is so necessary to conserve Canada's resources and build up a great paper industry here. Mr. Joseph Kilgour, president of the Canada Paper Co., states he has been informed that Germany at first was able to buy pulp-wood from Austria. Then Austria shut her doors and Germany imported wood successively from Sweden, Norway and Finland, and eventually all these countries prohibited the export of wood. Finland may be still exporting wood, but if so, measures are being taken looking to the prohibition of this trade. If it is wise for all of these countries to stop the export of spruce wood, would it not be to Canada's interest? Canada remains one of the few countries which have a supply of spruce wood, and should she not conserve such a valuable raw product? Canada has another object besides the saving of the wood for industrial purposes in the preservation of the water powers. These are yearly becoming more valuable to every industry and to every citizen in Canada, and their preservation depends largely upon the retaining of forests at the sources of these streams.

LETTER FROM MONTREAL.

(From Our Special Correspondent.)

Montreal, April 8, 1909.

The annual meeting of the Canada Paper Company, Ltd., was held in Montreal, in March, and the report presented by the directors was regarded as satisfactory, considering the circumstances. The old board of directors was re-elected, Mr. Joseph Kilgour, as president, Sir Montague Allan as vice-president; F. J. Campbell as general manager, and N. M. Thorne as secretary-treasurer.

* * *

It is rumored here that the Northumberland Paper Company, of Campbellford, Ont., which does a large business in building paper and box board, in this province, has decided to erect a pulp mill, for the manufacture of ground wood pulp. The mill will have an output of about fifteen tons per day and will be situated on the Trent River, where the power is ample all the year round. Hitherto the company has been purchasing the pulp used in the manufacture of box board and building paper from outside sources. The output of the new mill, however, will be nearly twice as much as will be required for the company's own purposes, so that a quantity will be left to be placed in the open market. The new mill will probably appear under a separate incorporation.

* * *

The Jonquiere Pulp Co., Jonquiere Que., is installing a new machine for use in the manufacture of wood pulp board. It will also absorb the surplus supply of sulphite and ground wood which is now disposed of in the open market.

* * *

A rumor has been heard here to the effect that a difficulty, which may considerably affect the plans of the new company, has arisen over the water-power.

It has been stated on fairly good authority, recently, that the directors of the Laurentide Pulp Company have in contemplation a new stock issue of common stock, although when the project will take shape is very much in doubt. The proceeds of the issue it is understood, would be used to wipe out the indebtedness of the company to the Bank of Montreal. It is believed also that the common stock dividend will be made quarterly instead of half-yearly, as at present. Sanguine shareholders, knowing the splendid earnings of the company, look for an increased dividend, once the new financial arrangements have been put into effect.

* * *

Nothing appears to be known among the paper and pulp trade of Montreal regarding the reported intention to erect at Lachine, a few miles west of the city of Montreal, a new mill. The trade is entirely at a loss to account for the report and does not attach much importance to it. It has been suggested that the report may have arisen out of some talk in connection with possible experimentations, in that locality, with flax as a substitute for spruce wood for the manufacture of paper.

* * *

Montrealers also appear to be in the dark regarding the report that a quarter of a million dollars was being spent at East Angus, on the erection of pulp and paper mills. It is thought that if any such expenditure is being undertaken, it is probably in connection with the property of the Brompton Pulp and Paper Company. This company operates, among other properties, that of the old Royal Mills, situated at East Angus. These mills have now been in operation a very long time—they may now be approaching their semi-centennial—and it is just as possible that an extensive programme of reconstruction is being undertaken by the Brompton Company. The company, however, has no office at Montreal, so that definite news is not available.

Among the installations of machinery which have either recently been completed or are in process of installation at the Hawkesbury sulphite fibre mills of the Riordon Paper Mills Company, are a six-hundred horse-power Babcock and Wilcox boiler and stoker; a set of twelve Packer screens, in the small mill, three additional screens being now in process of completion; a save-all, making the third of its kind; a complete system of ventilation for the blow-pits; a new acid storage tank with a capacity of 350,000 litres; a new wet machine; a new White-water machine for one of the paper machines and two beaters.

Taking the paper and pulp trade, as represented in Montreal, as a whole, the amount of business actually passing is very satisfactory while the output for future business is regarded as most hopeful. The element of uncertainty which pervades the American market is reflected here in a lack of orders from the other side, but in no other manner, apparently. Purchasers are refusing to make contracts, so long as there is any question of duty to be settled, unless they contain a stipulation to the effect that any decrease in the tariff will be allowed for. As it seems very probable, also, that reductions will be made, importers in the United States are restricting imports to a working minimum. Naturally, therefore, trade in Canada is being considerably affected. It is reported that some of the Canadian paper mills, in order to assist in closing contracts with American customers, have expressed their preparedness to make provision for whatever decrease may take place in the tariff. A number of expressions of disapproval of their attitude have been heard here, the criticism being that the Canadian manufacturers ought to get together and make an attempt to hold back part of whatever reductions may take place in duty. These criticisms arise from a misconception of the effect of a duty. It is a basic principle of economics that prices are controlled only by supply and demand, so that either of these factors

must be altered in order to alter prices. The general principles of trade are that, at any particular time, sellers are getting all they can for their goods and buyers are purchasing as cheaply as they can. Manufacturers cannot succeed in raising present prices arbitrarily. First must come a decrease in supplies or an increase of demand. At the present time they are getting a certain price at the mills. If they could get more they would not wait for a decrease in the duty; they would get more now. The difference between the cost of the goods here and in the United States is simply what it takes in freight, duty and other charges to alter the location of the goods from here to there. Duty is one of these charges, and if it be reduced it will not affect the price of the goods here any more than the lamb, in the old fable, who was drinking out of the same stream as the wolf—only lower down—could have affected the water the wolf was drinking. But the very fact that the consumer in the United States is able to lay down Canadian paper at a lower cost than formerly, will bring about a readjustment of demand. Other things being equal, demand for the Canadian product will increase, and the immediate effect of this will be to strengthen the market for Canadian paper. Hence, the net result will probably be higher prices here than would otherwise have prevailed. But the higher price cannot come until the demand increases—unless supplies should first decrease. While the American will smile at the Canadian who demands that he shall share the advantages of any reduction on charges placed on the goods after they leave the Canadian's hands altogether, and while, on that particular count, he will be entitled to his smile, the Canadian will smile last, for he will get him on the next count, that of demand. It is simply a question of how long it will take the forces to balance up and reach their level. Meantime, the manufacturer must act, for the bulk of the contracts are made about the first of May. Should he, ignoring the lack

of demand, attempt to obtain a higher figure on account of lower duties, he might find that his rival was glad to take the order; and to make matters worse, no reduction might take place in the duty at all. So that he has a very knotty problem to figure out and deserves no great blame if he accepts the contract in the manner spoken of.

Meantime, the demand for commercial paper for the domestic trade is excellent and dealers are looking forward to an active season. Box board is in splendid request, thus indicating expectations of the coming of a general revival in industrial activity.

The rag and paper stock trade shows little change. Demand is reported good and prices are steady all round, as follows:—

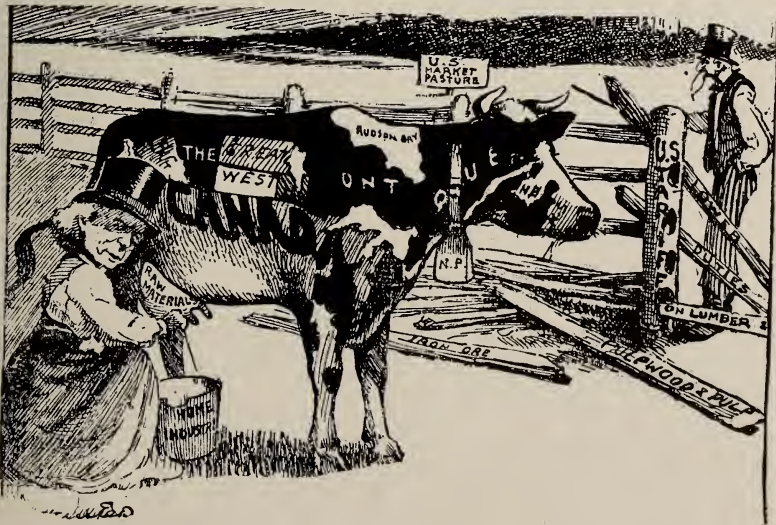
	Per 100 lbs.
Best white shirt cuttings....	\$4.00
Mixed colored shirtings	2.50
Dark shirtings	1.00
Mixed rags	0.70
Mixed cottons	0.90
Satinettes	0.50
Old bagging	0.40
Lindsey rags	0.80
Manilla rope	\$1.75 to 2.00

—The British Columbia Government is being criticized for its pulp concession policy. These concessions, it is said, have been frequently abused. It is further asserted that parties to whom the concessions are granted on condition that they erect pulp mills within a stated period often break the agreement and obtain extensions of time so that they may be able to dispose of their limits at a profit. A result of this condition of affairs, it is claimed, is that large tracts of timber lands are continually tied up.

—It is not only for lumber and pulp-wood purposes that the forests should be conserved. H. D. Van Sant, United States Consul at Kingston, Ont., says that as game preserves, it is claimed that the northern regions and forests of Canada furnish the finest fur-bearing animals in the world, the greater portion of these pelts going to American and Canadian cities. In a commercial sense the millions of dollars that have been derived from this source of Canadian wealth are likely to be curtailed unless some preventive is found for the constantly increasing wanton destruction of the forests and the many fur-bearing animals protected therein.



HIS OWN COW GONE DRY.



The Milkmaid: "He'd like awful well to coax her in there—and milk her dry."
—From the Toronto World.

PULP AND PAPER NEWS

The Thorold Pulp Company has now completed the repairs to its mill and is ready to resume operations.

* * *

The Educational Book Company, of Toronto, Ltd., has been authorized to increase its capital stock from \$200,000 to \$250,000.

* * *

The St. George Pulp and Paper Company's lumber mill at St. George, N.B., is to be enlarged by the addition of lath and shingle machines.

* * *

The office of the Lincoln Paper Mills Company is being moved from the little building by the Lybster to the house lately occupied by Robert Ford.

* * *

The Northumberland Pulp Co. has been incorporated to manufacture ground wood pulp. Its head office will be at Campbellford. The work of organization is now going on. Fuller particulars appear in our Montreal letter.

* * *

The conveyance of property in Peterborough by William Hamilton, President of the William Hamilton Manufacturing Company, to his wife Jessie, who is vice-president of the company, has been set aside by Chief Justice Mulock.

* * *

Art Wallpaper Shop, Ltd., Toronto, has been granted a charter to manufacture and deal in wallpapers, floor coverings, etc. Capital, \$50,000. T. H. McGee, A. C. Fox, and J. H. McKay, of Toronto, are provisional directors.

* * *

The Canada Coating Mills Company are putting in a new machine, though it is only a few months since an additional one was installed. This is an indication of the rapid progress being made by this company's business.

* * *

G. A. Howell, Toronto, has been appointed sole selling agent for Canada and Newfoundland for North & Rose, St.

Austell, Cornwall, who make a specialty of their G. H. clays. Mr. Howell is also handling casein, glue, and foreign pulps.

* * *

Hammermill Pulp and Lumber Company, Ltd., Toronto, has been incorporated, capital \$40,000, to carry on the business of lumbering and paper manufacturing in all its branches. E. R. and O. F. Behrend, of Erie, Pa., are provisional directors.

* * *

J. Frederick Booth, superintendent of the John R. Booth mills, Ottawa, is recovering from a serious accident. While looking into the construction of a new power house on the plant a stone fell upon him from a gangway about fifteen feet above him.

* * *

The new pulp mill of the Colonial Wood Products Company at Thorold, Ont., is likely to be built 16 feet longer than at first contemplated. The main building, which was to be 45 by 100 ft. is practically completed. A tunnel for water has been made to the old Welland Canal.

* * *

At the Miramichi Pulp and Paper Company, Chatham, N.B., the main shaft, five inches in diameter, broke a few nights ago, and the sheave was smashed in its fall. The shaft was steel, made especially for the mill, and had a calculated capacity to stand three or four times the estimated strain. Repairs were speedily effected.

* * *

Great progress has been made on the Minnesota and Ontario Power Company's works at Fort Frances, Ont. The power house is approaching completion, and the steel superstructure being placed in position for the pulp mill. About \$250,000 worth of machinery is now on its way from Pittsburg.

* * *

The Standard Paper Bottle Company of Canada, Ltd., Montreal, capital \$150,-

ooo, has been incorporated to manufacture and deal in paper, pulp and textiles, also bottles or cups made of paper. U. H. Dandurand, O. Rolland, and R. Prefontaine, Montreal, are charter members.

* * *

It is reported that the Backus-Brooks Company of Fort Frances and International Falls has ordered from the Pusey and Jones Company, of Wilmington, Del., four papermaking machines of the largest type for installation in the company's mills here next July. The machinery, it is said, will cost \$250,000 and fill fifty cars.

* * *

C. D. Warren, president of the Lake Superior Corporation, Sault Ste. Marie, is suing Francis H. Clergue, the promoter, for \$193,150 on the ground that the latter had promised him \$500,000 par value of the stock if he would accept the presidency. He took the office but did not receive the stock, and his suit is for \$150,000 damages, with interest from June 1st, 1904.

* * *

The Canada Paper Company has completed plans for the rebuilding of its mill at Windsor Mills, Que., which turns out book, writing and cover papers. The new mill will be of brick, steel and concrete. Two up-to-date machines will be installed, and the output will be greatly increased. The company will also install more grinders in their pulp mill. All told, the expenditure during the year is estimated at \$200,000.

* * *

W. R. Hearst is the head of a New York syndicate which is said to have already purchased 1,000 square miles of timber limits on the south coast of Newfoundland. The plans of the new concern are understood to call for the construction of a very large paper mill, the total expenditure being in the neighborhood of \$10,000,000. There is to be established a regular weekly steamship service to New York, the locality selected being free from ice the year round.

Last month the Toronto Paper Manufacturing Company utilized the closing of its mill at Cornwall, while the water was out of the canal, to make extensive repairs. Three new 1,000 pound beaters for fine paper were put in, while recently two Pfleiderer "broke mixers" were installed. H. C. Courtney, formerly of the Eastern Manufacturing Company, Bangor, Me., has been appointed superintendent of the mill, and he is now engaged in overhauling it. New electric machinery to drive the machines making supercalendered paper has also been purchased.

* * *

The Port Canada Docks, Warehouse & Storage Company, Ltd., is applying for incorporation to the New Brunswick Government. The object of this company is the development of L'Etang, the Charlotte County port. Those applying for incorporation are George W. Marsh and Walker L. E. Marsh, steamship merchants, of Toronto; Robert N. Agnew, financial broker of New York; Charles H. Clarke, a merchant of New York, and Joseph Doust, merchant, of Toronto. These men are also largely interested in the Canada Terminal Railway Company, which has a charter to build a railway from Vanceboro to L'Etang, which is something of a pulp-wood country.

* * *

The Copp-Clark Co., of Toronto, has begun work on the erection of a \$40,000 building on Wellington Street West, to hold their manufacturing plant and its 200 employees. The building will have an average width of 65 feet with a depth of 200. It will be constructed of brick and concrete and will be arranged so as to receive light from all sides. It will be two storeys high, with a high basement for the presses and heavier machinery, while the lighter machinery will be located on the upper floors. Electric power from Niagara will be used. The company expects to concentrate all its manufacturing departments in this building, which departments have been for a good many years

seriously cramped for room in the Colborne Street plant of the company.

* * *

Declaring that the Maclaren Company of Buckingham has a monopoly of everything on the Lievre River there, a deputation interviewed Sir Wilfrid Laurier, and asked that the Government take over all the works on the river such as booms, slides, etc. It was stated that these are now owned and operated by the Maclarens, who have exclusive control and that others cannot use the slides or bring logs down the river without their consent. It was pointed out that the department of public works is in possession of the river works on the Ottawa, Gatineau, Rouge, Coulange, Madawaska and other rivers, and the extension of this policy to the Lievre was strongly urged.

* * *

Owing to insufficient working capital the St. Raymond Paper Company found itself in the position of being financially unable to carry on its operations. In the circumstances it was therefore deemed advisable to ask the appointment of a receiver in order to consider reorganization in some form, procure sufficient capital to put the company on a strong financial basis and adopt the best course to take in the interests of all concerned. For this purpose, at the request of the company, the court appointed Frank Powell liquidator, with an advisory board of five inspectors, who have now matters under consideration, and it is hoped will shortly arrive at a solution of the present difficulties.

It is understood that the publishers of "La Presse" were among the principal purchasers of the company's output, it being partly in view of the demands of that concern that the organization of the St. Raymond Co. took place.

* * *

In connection with the low water problem in the Ottawa River the Ottawa Board of Trade has come out strongly in favor of building a series of retaining dams along the upper reaches of the

Ottawa River. The idea is to hold back the high water in the spring in the upper parts of the river, releasing it from time to time as the season advances so as to keep the flow uniform. Resolutions were passed to this effect, and these have been presented to the Ottawa City Council and other public bodies. It is satisfactorily noted by the power users of the Chaudiere Falls that power conditions have been much better this spring than were expected. This is due in the first place to the mild winter, with its frequent thaws, but no small part of it is due to the new dam, which, although not completed, by the insertion of stop-logs has prevented a large waste of water. The saving to the manufacturers depends upon the falls, for power once the dam is complete will run into hundreds of thousands of dollars per year.

* * *

Forestry questions have been up in the Ontario Legislature with considerable frequency. In response to a question by Mr. McDougall, of Ottawa, Hon. Frank Cochrane, Minister of Crown Lands, pointed out that the adoption of new methods in forestry meant time and money. Some of the licenses to cut timber had been issued in 1832 and had been renewed annually ever since. Some had been transferred several times from one holder to another, with the consent of the Government, and it would not be fair to cancel them suddenly. Next session he hoped to have something to lay before the House. The time had come when the mature timber on the reserves must be cut under proper regulation. The Government was now considering the formation of another large timber reserve in the Rainy River district. In another debate Hon. A. G. Mackay, ex-Minister of Crown Lands, and now leader of the Opposition, claimed that if properly managed Ontario's timber reserves should yield a revenue of \$5,000,000. He took the figures of officers of the Department as indicating that there was at least 6,000,000 acres of virgin timber in the reserves upon which

he estimated there was a growth of 150 feet per annum. This at a price between \$5 and \$6 per thousand would amount to \$5,000,000 per year.

* * *

The E. B. Eddy Company, of Hull, is making a number of improvements and extensions to its mills looking to new lines of products and increased efficiency in the old lines. A large new factory is now under way which will be used for the manufacture of binders' boards and plate for the backs of books. The new factory will have a capacity of from five to ten tons per day, and as there is no manufacture of these goods in Canada at present it is believed there is a good field for them. The Dominion Government Printing Department uses a large quantity for binding Government publications. For washing pulp and supplying more water to its smoke-consuming device the Eddy Company is erecting a new pump with a capacity of 3,500,000 gallons per twenty-four hour day. This will increase the pumping capacity of the plant to 6,000,000 gallons per day. Recently there were complaints in the Ottawa City Council of the sulphite vapors from the sulphite plant. The system for suppressing these is perfect except when the supply of water is not sufficient and it is felt that the new pump will obviate any further complaint from this source. The smoke nuisance is also overcome by the use of water. These works consume from 20,000 to 25,000 tons of coal per year, and the smoke nuisance would be considerable if not fully controlled. The smoke is condensed by forcing it through a water chamber.



MR. LANCELIER TAKES EXCEPTION.

The Editor Pulp and Paper Magazine:

In the report of proceedings of the last meeting of the Canadian Forestry Association, as published by Pulp and Paper Magazine for March 1909, I read what follows at page 108:

" . . . and a paper by Elwood Wilson, forester for the Laurentide Paper Company. The latter stated that the lack of qualified rangers practically nullified excellent regulations which prevailed in Quebec. Out of four years' experience, he had yet to see a government officer come into the camp and see whether the regulations were being carried out."

If that report represents exactly what Mr. Wilson said, the latter simply committed himself to a fallacious statement, which I challenge him to corroborate by facts. For the last three or four years, we have had for rangers in the St. Maurice Territory men of the highest competency in every respect, amongst others the late Mr. Robert Swezey, James Hamilton, and A. Gagnon. Through their intelligence, real merit and activity, these men have acquired a reputation which can not be impaired by the unwarranted and erroneous statements of Mr. Elwood Wilson.

And facts are there to disprove Mr. Wilson's statements. For the last two or three years, upon the report of some of those men, the Laurentide Paper Company was mulcted in heavy penalties for violating the Government regulations, namely for cutting under size, and making such slashes as may be seen in the country around Lake La Pêche. Evidently our men were there, they performed their duty, and if Mr. Wilson, the forester of the company, was there, how does he account for the fact that he allowed the forestry domain of his employer to be so destroyed? It is a pity he did not give these explanations in the paper which he read before the Canadian Forestry Association.

(Signed) J. C. Langelier,
Supt. of Forest Rangers.
Quebec, 8th March, 1909.



—P. H. Wilby, Canadian agent for the "Leon" Belt, with offices formerly at 27½ Toronto Street East, Toronto, has moved to more commodious quarters at 124 to 128 Richmond Street West.

BRITISH-CANADIAN WOOD PULP AND PAPER COMPANY, LTD.

Recently it was thought best by the Board of Directors of the British-Canadian Wood Pulp & Paper Company, Limited, Vancouver, to have an examination and report made on the work done on the plant of the company at Port Mellon, by a competent, disinterested party and to that end engaged C. B. Pride, Pulp and Paper Mill Architect and Engineer, formerly of Appleton, Wisconsin. After personally examining the building and machinery as installed, Mr. Pride made the following report:—

Mr. P. M. Hamlin, the manager of the company, is to be commended on the excellent results obtained. On the 4th of May last, a little over ten months ago, Mr. Hamlin arrived on the mill site, covered at that time with a heavy growth of timber, it being necessary to clear the land before any of the excavating work could be done. While the mill site was being cleared the mill plans were drawn, under the supervision of Mr. Hamlin, in the office of Colonel T. H. Tracy, Vancouver, and the machinery ordered.

The report made by Mr. Pride shows how rapidly the work has been pushed along. In addition to the satisfactory character of the work, it is a source of gratification to Mr. Hamlin and his company that so eminent an authority as Mr. Pride could point out that the cost of erecting the mill and installing the machinery has been kept below the usual cost for pulp and paper mill erection.

Mr. Pride's report follows:—

"Acting upon your request to make an examination and report upon your mills at Port Mellon from the standpoint of a paper mill architect and engineer, I am pleased to submit the following:

I find that the mill buildings are well constructed and of ample size to permit of the installation of the necessary machinery to manufacture at least thirty tons of paper each twenty-four hours.

The soda mill in connection is well arranged; also the general papermaking machinery throughout—the paper ma-

chine proper being somewhat narrower than is generally used. However, this machine can be operated to good advantage in connection with a wider machine which you can install at any time after the operation of the other is going forward, for the reason that the general trade demands some narrow paper which could be made on this small machine and sold in connection with the wider sheets after you have the other wider machine installed. You will be in a position, when the mill is completed by installing the balance of the machinery which you have on hand, to manufacture with this present machine, rews prints, wrapping paper, Manilas. I

would advise that you start up this present mill as soon as possible and run it very slowly to begin with as a new machine needs a considerable amount of time for adjustments and to obviate any danger of a breaking down, which might occur with too much speed when beginning to manufacture.

With the material which you have, such as spruce, hemlock, and fir you will be in a position to make a first class grade of paper of the kinds above named, and of a much better grade than the general paper now furnished this market.

Regarding construction of the buildings, I find that the foundations are built from concrete and are first class in every respect, and that all the machinery where strength is required has concrete installed for foundations also, which will insure the successful running of the mills throughout and the general workmanship in connection with the erection of the machinery is also.

The amount that you have invested in this plant to date, viz., \$160,000, I consider is at least \$50,000 less than such a size plant is generally constructed for, from the fact that much more expensive work is designed as a rule, such as solid concrete and brick buildings throughout. With the construction which you have there, the mills will manufacture paper just as well as though a more expensive plant were built.

I would recommend that you immediately deliver the balance of the machin-

ery required, which is small, and install an adequate force of workmen in all the different departments and push the completion, and get the mill in operation, which should not occupy at the outside, over three months time, and if you have the machinery ready for installation, 60 days should really complete the plant.

I am satisfied that you will make a fair profit with the present machine in operation, which you have in connection with your soda mills. However, I would recommend that you immediately install a second paper machine 133 in. in width with the necessary beating engines, refining machinery, and also a small sulphite plant which will permit of the manufacture of at least 30 to 40 tons of first class paper ready for the best markets, such as print, wrapping and fibre Manilas.

Also the water power which you control should be improved and a mechanical ground wood mill added. These improvements would balance up the mills and you will then be in a position to manufacture any grades of first class papers ready for the market, and to be of the suitable widths that the market requires, and at a profit of at least 50 per cent. on the money invested.

It is one of the very best locations for the manufacture of paper which I have had anything to do with in some years past owing to the very best raw material being near at hand and at a low cost price; also the water which you have in the river being of a very soft, clear nature, which also aids in the manufacture of clean first class papers."



CASEIN AND ITS INDUSTRIAL APPLICATIONS.

Casein is the result of the action of acetic acid on milk, characterized by the separation and precipitation of a gelatinous mass. The percentage of composition of this body, to which the name of casein is applied, has been determined as:—

Carbon	53.43
Hydrogen	7.02

Nitrogen	15.36
Oxygen	21.93
Sulphur	1.12
Phosphorus	0.74
Ashes	0.40

Should the traces of sulphur and phosphorus be neglected, a formula represented by $C_{20}H_{36}N_5O_{10}$ or multiples could be reasonably assigned to the product known as casein. Whatever its formula may be, the fact remains that casein possesses much the same composition as gelatine, in addition to agreeing with it in its general characteristics, with the exception that casein does not coagulate like gelatine under the influence of heat. Casein appears on the market in the form of a yellowish hygroscopic solid, and it shows an acid reaction with turmeric; it is insoluble in water, but perfectly soluble in alkalis and salts, with an alkaline reaction, and it forms insoluble salts with the metallic salts. This property of submitting to double decomposition is taken to account in certain finishing processes, to render insoluble those soluble metallic salts with which a fabric may have been previously prepared; for instance, in the so-called whitening of certain classes of fabrics which are generally impregnated with barium chloride and sulphate of barium formed on the fibre by subsequent treatment with soda and sulphate of soda.

From the chemical point of view, the reactions of casein closely resemble those of gelatine, and the knowledge of this fact is of some interest to the finisher, for if employed as a thickening agent along with metallic salts as weighting agents or as antiseptics, colorations may result which vary as the bath may be acid or alkaline. For example, in the presence of air and of hydrochloric acid vapour—a circumstance which may arise by the decomposition of chlorides used for weighting purposes—the casein takes on a reddish-blue hue; under the action of nitric acid it acquires a yellow coloration, which may pass to orange under the influence of ammonia; sulphuric acid in the presence of a small quantity of glucose causes a purplish

coloration; and by the action first of sulphate of copper, and then of potash, casein takes on a violet color. These inconveniences in the case of finishing are not singular to casein, for many such may be set against one or other of the commoner thickening agents, but its employment for many of the purposes for which gelatine, the dextrines and gums are called into use offers some advantage, because of its most remarkable coloring properties. Furthermore, casein is still more valuable because its compounds are readily decomposable by the action of acids or even a rise in temperature, and again because of its property of forming, under conditions already mentioned, stable insoluble compounds. As early as 1830 Draconnot pointed out the interesting properties of this body, and at that time made certain proposals for its industrial application that have since secured adoption in practice, notably as a substitute for gelatine in the finishing of certain classes of fabrics. Casein is, of course, insoluble in water, but readily enters into solution when mixed with soda or borax. But the solution should be complete and thorough, otherwise serious faults may result, especially in instances where material which has been treated with an imperfect solution has to undergo storage for a prolonged period, for then a separation of the two compounds may take place by virtue of density, the free alkali causing the trouble. Its proper solution may be effected by first dissolving the alkali in proportion to water varying with the nature of the salt employed—carbonate of soda, 8 per cent.; silicate of soda (36 deg. Bé.), 10 to 12 per cent.; and borax, 13 to 15 per cent. To the solution of the alkali add the casein, and raise the temperature of the mixture to 50 or 60 deg. C. By this mode of preparation simplicity is gained as well as certain regularity in composition. To replace gelatine in finishing, the casein is preferably employed in the form of its magnesium compound, in which state it readily enters into solution in ammonia, supplying a viscous mass. There does not appear to be any

opening for the application of casein to woollen fabrics, because of its varnish-like character, but to cotton it is said to have given excellent results in the majority of cases, even as a substitute for albumine. Caseinate of magnesium supplies a very transparent solution, in which fabrics may be treated, and, after draining, passed into a bath of alum and metallic earths, so as to form on the fibre by double decomposition an insoluble salt, a deposit which may serve to impart a brilliant appearance to the material upon hot calendaring. In the form of caseinate of soda a mordant is afforded for the acid dyestuffs, though this sphere of usefulness is more successful in printing than in dyeing. As a substitute for albumine in calico printing, however, casein offers great advantages. Pigments may be fixed in the same way as with albumine, the manner of working being varied according to circumstances. The colors may be mixed with the casein and applied in the usual way, steaming to bring about coagulation being relied upon; formaldehyde may be used for the purpose of fixation.

According to reports from a large printing works, it appears that the cost of the casein method is much lower than the albumine process. The following figures, after Maguin, show the relative costs:—

	With Albumine.	With Casein.
Chrome-yellow on black	4.20	0.70
Blue-lake	3.60	0.60
Pink-lake	1.50	0.25
Deep pink-lake	1.50	0.25
Red-lake	11.25	1.88
Chrome-yellow on vat blue	6.30	1.10

The same authority states that the colors are much brighter and the material softer when casein is used in preference to albumine. Still, some drawbacks attend the use of casein, the chief of which is the disclosed fact that the mineral colors fixed with it do not exhibit the same degree of fastness as those fixed with albumine.

THE COST OF MANUFACTURING PAPER IN CANADA AND UNITED STATES.

Arthur C. Hastings, President of the American Paper and Pulp Association, has written to the United States Ways and Means Committee stating that the schedules of cost of making news print in Canada, as given by J. R. Booth, of Ottawa, were seriously misleading. While, on their face, the figures indicate a cost about equal to some of the best of the American mills, yet, contends Mr. Hastings, upon analysis, they prove that the cost is much less than the cost in American mills. He adds: "The cost of sulphite per ton was given by Mr. Booth in his letter to the committee at \$29.86. It is customary to use 25 per cent. of this in making print paper. This would make the cost of this item \$7.46, whereas in the table for cost of print paper the item of sulphite appears at \$10.45, a difference of almost exactly \$3, equivalent to a profit of \$12 on every ton of sulphite. The cost of ground wood pulp is given as \$11.37. It is customary to use 80 per cent. in making a ton of news print paper, some allowance having to be made for shrinkage. This would make the cost of ground wood pulp for a ton of print paper \$9.09, whereas it is given in the table showing the cost of print paper as \$11, a difference of nearly \$2, equivalent to a profit of approximately \$2.50 on every ton of ground wood. This would indicate that the correct cost of paper per ton should be \$4.90 less than given by Mr. Booth by reason of these two items alone. Mr. Booth can, therefore, afford to sell his paper at \$34.11 at the mill, making a fair profit of about \$5, or paying \$2 duty and \$3.60 freight, he can sell his paper profitably in the New York market at \$39.71, which is considerably lower than American paper-makers can deliver paper profitably."

To the above criticisms, Mr. Booth replies to Mr. Mann, Chairman of the Committee, as follows:

"Enclosed you will find, firstly, a statement compiled to confirm the item of \$11 shown in report No. 42, page 3361, as the cost of the ground wood pulp that I used in each ton of paper manufactured from January 1st, 1908, to November 30th, 1908; reference to it will disclose that the ground wood pulp I manufactured and purchased cost me \$14.38 per ton; that while that I manufactured cost me \$11.37 per ton, vide report No. 42, page 3360, that I purchased cost me \$20.24 per ton; that the cost of ground wood pulp in a ton of paper was \$11; that 76½ per cent. of ground wood pulp was used in making a ton of paper.

"Secondly, a statement compiled to confirm the item of \$10.45 shown in report No. 42, page 3361, as the cost of the sulphite that I used in each ton of paper manufactured during the aforesaid period; reference to it will disclose that the sulphite obtained from all sources cost me \$34.55 per ton, that the cost of the sulphite in a ton of paper was \$10.45, that 30.2 per cent. sulphite was used in making a ton of paper.

"Thirdly, a statement disclosing the cost of ground wood pulp, sulphite and paper as between the International Paper Company and myself, vide report No. 18, pages 1075, 1076, 1077, relating to the International's cost, and report No. 42, pages 3360 and 3361, relating to mine. I shall ask you to refer to the first paragraph in Mr. Hastings' letter, and then refer to the comparative statement of cost between the International and myself. In his letter he states that my figures on the face indicate a cost of print paper about equal to some of their best mills. Do they not? Kindly refer again to paragraph two, wherein he suggests that a profit of \$12 a ton on sulphite accrued to me. You are now aware that such is not the case.

"I hardly thought it necessary to refer to the balance of his letter, but it has occurred to me to draw your attention to his statement to the effect that my cost should be \$4.90 per ton less than that given, and that the reduction in itself

would constitute a fair profit. I shall ask you to refer to report No. 20, page 1425, wherein you will observe that Charles Remington, one of the most practical paper-makers in the United States, indicates in the statement of the cost of his paper that \$2 per ton for depreciation should be applied against profit, or added to loss, as the case may be. I am accepting Mr. Remington's figures for depreciation as fair. Mr. Hastings' assertion, therefore, is that \$2.90 per ton would be a fair profit to me.

"Mr. Hastings evidently overlooks the fact that I own a modern plant, with a capacity of 100 tons daily; that on a basis of \$20,000 per ton of paper as its cost I might capitalize it at \$2,000,000. Thirty thousand tons of paper at \$2.90 per ton, \$87,000, 4.35 per cent., would not satisfy me. How far would such a dividend go toward paying the fixed charges on an American mill so capitalized? What would accrue to the promoters?

"I feel certain that a casual glance at the comparative statement of cost between the International and myself will satisfy you that only a difference of \$1.35 per ton exists between the costs of that company and myself; that reference to the tabulated statement of the rates found on page 6316 of Tariff Hearings, which, I may say, was submitted by the International itself, will satisfy you that the difference in rates practically offsets the differences in cost.

"I regret to have to trouble you, but I am doing so with the hope that I may convince you that many of the American paper manufacturers have instituted a campaign of misrepresentation; for instance, refer to page 6315 of Tariff Hear-

ings wherein the International Paper Co. asserts that I pay \$6 per rough cord for my wood. In 1908 my wood cost me \$8 per rough cord, and this year will cost me nearer \$9 than \$8, delivered in log lengths in the water alongside my saw-mill at Ottawa.

"I stated above that it would cost me \$20,000 per ton of paper to build a modern plant. It is possible that such might cover the cost in the United States; if it did, more capital would be needed in Canada, from the fact that 75 per cent. of the machinery, etc., in my wood pulp, sulphite and paper mills was imported from the United States, on which I paid a duty of 27½ per cent., ad valorem, also the excess in freight charges to Ottawa over American points. Again in the manufacture of my paper I pay a duty of 53 cents per net ton on coal, and 70 cents per net ton on freight from the frontier. This year my coal is costing me on cars in Ottawa \$4.42 per net ton, against \$3 to \$3.20 delivered at American points. You will observe that during a portion of the year I show no charge against fuel, as I was then running my plant on saw-dust; this, however, may not be available next year or that following; in any event, other Canadian mills have not that advantage I have enjoyed. Most of my skilled labor is imported from the United States, and a higher rate of wages must be paid to induce them to come over here."

J. R. Booth.

The comparative statements accompanying the above letter, are as follows:

Comparative statement of the costs of ground wood pulp, sulphite, news print paper, as between the International Paper Company and J. R. Booth:

International's cost of sulphite.....	\$31.38	.....
J. R. Booth's cost of sulphite.....	29.86	.....
	<hr/>	
	\$1.52	
If 25 per cent. of sulphite is used in a ton of paper the excess cost to I. P. Co. will be in a ton of paper		
		\$.38
International cost of ground wood.....	\$14.41	.....
J. R. Booth's cost of ground wood.....	11.37	.....
	<hr/>	
	\$3.04	

If 80 per cent. of ground wood is used in a ton of paper the excess cost to I. P. Co. will be a ton of paper	2.43
	<hr/>
International's cost of conversion, etc., is	\$2.81
J. R. Booth's cost of conversion, etc., is	11.76
	<hr/>
	\$1.46
Excess cost to J. R. Booth in ton of paper	1.46
	<hr/>
Excess of cost to International in ton of paper	\$1.35

Reference to page 6316 of Tariff Hearings will disclose that the advantage J. R. Booth obtains over the International in the cost of manufacturing pulp, sulphite and paper is practically offset by the advantage that accrues to the International in their freight rates.

Statement prepared to confirm the accuracy of the cost of ground wood used in the paper manufactured in my mill from January 1st to November 30th, 1908:

Ground wood manufactured in my pulp mill during above period: 11,652 tons at \$11.37 per ton, vide my cost statement, \$132,483.24.

Pulp Purchased.

From MacLaren Company.

	Price	
	Tons.	per ton.
Feb., 1908	1,600	\$21.25
March and April 200	18.00	\$34,000.00
Aug. and Sept..	1,000	17.00
October	500	18.00
October	500	19.00
October	300	21.25
November	216	24.25
		5,238.00

4,316 \$84,713.00

From Belgo-Canadian Pulp and Paper Company.

	Price	
	Tons.	per ton.
February, 1908 .	150	\$18.20
October	5	19.20
October	56	21.20
November	31	22.20
November	100	24.20

342 \$7,121.40

From Jacques Cartier Pulp and Paper Company.

	Price	
	Tons.	per ton.
March, 1908 . . .	24	\$18.75
November	256	21.50
November	100	22.50
	380	\$8,204.00

From George W. MacFarland, Sturgeon Falls, Ont.

	Price	
	Tons.	per ton.
October, 1908. . .	55	\$19.00
October	13	20.00
October	58	21.00
October	200	22.00
November	467½	23.25
	793½	\$17,792.37

From Laurentide Paper Company.

	Price	
	Tons.	per ton.
October, 1908. . .	45	\$23.00
Oct. and Nov.. . .	100	21.20
	145	\$3,155.00

Recapitulation.

	Tons.	
MacLaren	4,316	\$84,713.00
Belgo-Canadian . . .	342	7,121.40
Jacques Cartier . . .	380	8,204.00
G. W. MacFarland ..	793½	17,792.37
Laurentide	145	3,155.00
	5,976½	\$120,985.77
Pulp made		\$132,483.24
Pulp purchased		120,985.77
		<hr/>
		\$253,469.01

Cost of manufacturing, \$11.37 per ton; average cost of pulp purchased, \$20.24 per ton; average cost of pulp used, \$14.38 per ton; cost of pulp used in paper, \$11 per ton, per statement, there-

fore, 76.5 per cent. of a ton of pulp was used in a ton of paper.

Statement prepared to confirm the accuracy of the cost of sulphite used in the paper manufactured in my mill from January 1st to November 30th, 1908:

Stock Carried from 1907.

	Tons.	Price per ton.
Riordon	422.2	\$42.00
Laurentide	230.0	33.00
Dominion Pulp Company	24.0	31.50
Ed. Partington	58.7	38.00
	<hr/> 734.9	
January-February, 1908—Purchased from Partington	262.0	\$38.00
January-March—Purchased from Dominion	165.0	38.00
May-July—Purchased from Laurentide	526.0	38.00
February-July—Purchased from Janquiere	487.0	36.00
January, 1908—Purchased from Riordon	142.0	40.00
February—Purchased from Riordon	49.0	39.00
March-April—Purchased from Riordon	1,071.0	37.50
May-June—Purchased from Riordon	882.0	36.00
September-October—Purchased from Riordon	112.0	36.00
July-November—Manufactured by J. R. Booth	2,910.0	29.86
	<hr/> 6,606.0	
Add stock carried from 1907	734.9	
	<hr/> 7,340.9	
Less stock on hand November 30th, 1908	239.0	\$29.86
	<hr/> 7,101.9	
Tons used in paper	7,101.9	
Average cost of sulphite per ton used in paper	\$34.55	

Cost of sulphite used in paper, \$10.45, therefore 30.2 per cent. of a ton of sulphite was used in a ton of paper.

Mr. Hastings suggests that it is customary to use 80 per cent. of ground wood when making a ton of news print paper, as some allowance has to be made for

shrinkage, and it is also customary to use 25 per cent. of sulphite when making print paper. It will be observed that I used in 1908 76.5 per cent. of ground wood pulp and 20.2 per cent. of sulphite.



LAKE SUPERIOR CORPORATION.

The plans of the newly-organized Lake Superior Corporation, it is said, include the expenditure on the several industries of no less than \$5,000,000 rather than the \$1,500,000 at first stipulated. The sulphite mill, which has been closed

down for some time, will soon be reopened to run at its full capacity. A third blast furnace and a third open hearth furnace will be constructed. Structural steel works also have been decided on. Several miles of new railroad will also be built in Algoma and North-west Ontario.

CANADA'S SPRUCE.

By J. A. De Cew, Chemical Engineer,
Montreal.

In every argument there should be at least one dominant note which differentiates itself as the essential idea, or as the base around which the rational structure has been developed. The theme which may be noticed permeating the following remarks would probably be expressed by some of the lovers of personification by a title somewhat as follows: "King Spruce, the Habitant of the North."

In Sargent's Report of the Tenth United States Census, on the "Forests of North America," he states that the Northern Forest stretches along the northern shore of Labrador to nearly the 60th degree of north latitude, sweeps to the south of Hudson's Bay and then north-west to within the Arctic circle. To grasp the meaning of this it is necessary to refer to his Map No. 1, Supplement, which shows the forest and treeless regions of North America, and then to Map No. 9, which shows the areas which are covered with, and which will grow, the firs and spruces. On this map (No. 9) there is (east of the Rockies) very little coloring matter south of the Canadian boundary. Outside of the Provinces of Canada, which hereafter we may discuss, there is a great northern unknown country, which is divided into territories as follows: Ungava, 354,961 square miles; Keewatin, 500,861 square miles; Mackenzie, 562,181 square miles; Yukon, 196,873 square miles. Total, 1,614,877 square miles.

These have a total area of over one and a half million square miles, and which is equal to the entire area of the nine Provinces of Canada. Wherever explorers have gone in these northern wilds they have found timber, and that timber is mainly spruce. Let us try to imagine what bearing this may have upon paper in the future.

When the era of wood papers began (a time which can be distinctly remem-

bered by our older paper makers) the business became rapidly revolutionized, new standards were established in quality and cost, and there came a phenomenal readjustment in the manufacturing conditions as well as the centres of production.

We now find that many kinds of paper may be produced from certain woods in various ways, but one great class of paper has been evolved whose whole existence depends entirely upon the use of the new material, and which is produced from one class of wood in one way. This is the cheapest grade of white paper that can be made, and which, probably from the work that it has to do, is called "news."

It is evident to every close observer that the time when this material reached its minimum cost of production is already a part of the past. Such conditions as we have seen, when cheap water power and cheap wood were in such abundance that they were in excess of the demand, may only occur once in the history of a new country. Ground wood, which is the basis of cheap power, is the result of power applied to wood. The power must be cheap and the wood must be soft, white, non-resinous and of good fibre, or, in other words, of the nature of spruce. Before woods of different character can be profitably ground there must grow a great disparity in the relative value of the woods. When all the water powers are utilized, no doubt grinding will be done by steam, but will this not but increase the necessity for an easy grinding wood? Perhaps the time will come when ground wood will be a thing of the past, but this will be when the water power and the spruce forest have ceased to co-operate.

Is it not becoming apparent that there is an element of humor in some of the wild suggestions for paper-making substitutes that are continually being seized upon by the anxious publisher, in the hope that there may be some real substance in the shadow? Because almost any waste fibrous vegetable substance will make paper, it does not follow that

it will ever make a paper than can compete in cost with wood. Although our chemical processes are becoming daily more efficient, yet their product must always be more costly than the mechanical one, on account of the smaller yield. Practically all of the wood substitutes that have had their boom are of a bulky nature, a heterogeneous character, and producing a short fibre with small yield. These will become important paper-making materials when the suitable woods cannot be obtained.

It should be a matter of some satisfaction to the lumbering industry to know that there are still 550 million acres of standing timber in the United States, and it is to be hoped that this will be preserved and utilized for very many years. It goes without saying, however that this timber will be nearly all in the South and West. In it there will be many species of wood, a few of which are now of interest to the manufacturer of paper. The proper development of the alkaline processes will no doubt utilize many of these woods in the production of wrappings and papers of better grade. The function of the sulphite process, however, does not extend to the resinous woods, and the writer would like to suggest to some of the experimenters in this direction that a determination of the resinous content of the fibre they obtain while cooking some of these woods will give them some idea of the difficulties that will be met with when a stock such as this goes over the machine.

Although hemlock timber is now used extensively in the production of sulphite pulp, yet the fibre has a distinct value under that of spruce of about \$2 per ton. With the advent of more careful buying methods on the part of the paper-maker there will be a more distinct classification of sulphite grades than heretofore, and the structure of the fibre as well as its physical and chemical properties will determine its value and use.

It is not likely, therefore, that the hemlock fibre of the future will enter

very largely into the manufacture of news, as there will always be a large demand for this for the intermediate grades of paper.

The chief requisite for low cost of production in news is that paper should be made from stock produced at home, which means that the water power is the nucleus of the industry. The modern evolution of a news mill begins with the production of ground wood, which at first is shipped long distances along with its own weight of water. The freight disadvantage becomes apparent and a machine is installed. Then the erection of a sulphite mill and the industry is complete. This industrial sequence will occur in many locations where ground wood is now the only product and where water powers are yet undeveloped.

Adverse legislation or tariff restraints may retard or accelerate development at different points, but the effect is temporary, and hardly to be considered in view of the broader aspect of the subject. It is a matter of little concern to the industrial pioneer if one of his customers wishes to impose a tax and pay the fee. The principle of protection, which is a good one, aims at the consumption of home raw material, and might be expressed in the phrase, "Let us eat our own bread first and then buy from the baker." But this principle does not always coincide with that of conservation, and the compensation for the application is the privilege of the baker to fix his ultimate price in accordance with the law of supply and demand. As Canada is destined to be a baker of considerable magnitude in the world's trade, by providing the mediums for both physical and mental nourishment (judging from the present constant rate of expansion in the productiveness of lands and forests), there seems little necessity for any artificial trade stimulus. Her real need is for the protection and conservation of that latent wealth, which is as yet of little concern to the individual, but which will eventually, if scientifically utilized, be the dominant factor in certain lines of trade.

Our great present danger emanates from the careless methods resulting from a depreciated stumpage value. This seems inevitable when nature's storehouse is being broken into at a greater rate than its industrial assimilation. The rapid adjustment in foreign countries of the stumpage value to its reproductive cost is the impetus towards investment in Canadian timber; and the advent of better trade relationships for the manufactured product would also accelerate the rate of local absorption.

The timber areas in Canada will develop in succession as the hydrographical basins are made accessible to transportation. Some have already been worked over, as in the case of the Acadian area, which lies south of the St. Lawrence River, and consists of the Maritime Provinces and the eastern townships of Quebec, and on which the pine has already been cut out, while the spruce is disappearing. In New Brunswick, although there are 12 million acres of wood lands, the timber running 60 per cent. spruce, and 90 per cent. of it is already privately owned. The St. Lawrence valley sections, like most settled districts, are practically denuded of merchantable timber, and in its place have arisen farms. This area is small, however, compared with the Laurentian plateau, which extends from the St. Lawrence valley to the height of land, all of which is a well-timbered country, carrying spruce and balsam fir, interspersed with pine and hemlock.

The northern Laurentian forest of Ontario and Quebec lies in the watershed which flows into James Bay, and is covered with spruce forests which run more to pulp-wood than to merchantable timber. The portion of this forest in Ontario consists of 46 million acres, and that in Quebec of 144 million acres, making a total of 190 million acres of pulp-wood lands.

The southern Laurentian forest consists of 50 million acres in Ontario and the same in Quebec, making a total of 100 million acres of spruce, balsam and pine, and it is upon this region that the

first era of spruce papers will mainly depend. The remaining portion of these Provinces are the southern hardwood region of Ontario, consisting of 30 million acres; the 5 million acres of the St. Lawrence valley, and the 19 million acres of the Acadian region.

Between the periods of the paper development of the southern Laurentian and northern Laurentian timber, will come that of the North-West Territories and the Pacific coast. Although British Columbia has a total acreage of 266 million, about 50 million acres of this is supposed to be commercial forest area. On account of the quality of this timber the lumberman will probably utilize the lion's share, although the paper industry should thrive at many points where the spruce is locally abundant.

The almost unknown forest of the great North-West is a timber potentiality with which as yet there has been no reckoning. This forest stretches over an immense region, extending in a wide strip from 300 to 600 miles wide, from the border of Ontario to the northern Yukon. It embraces the valleys of the Peace, Athabaska and Mackenzie Rivers, on which there are 3,000 miles of navigable waterways, and along which, according to the explorers, the spruce is always in evidence. The deciduous trees that are the inhabitants with the spruce, are the poplar and birch, both of which are the ideal woods for soda fibre, being much more suitable for this purpose than the highly lignified deciduous woods of the south. As yet little value is put upon the enormous quantities of this timber that will be available for an industry yet unborn. The great future here is the export of pulp to the highly developed paper-making centres of Europe and America. The opening of a route through Hudson's Bay will make this a simple proposition. As the Peace River country has rich deposits of coal, asphalt and natural gas, the time may not be far distant when these resources may be made accessible to rail transportation, the illusion being rapidly

dispelled regarding the uninhabitable-ness of the north.

While the lumberman is devoting his time to the timber, which is more suitable for lumber than paper, the paper-making pioneer will be utilizing and creating riches from the northern woods. Even if the northern lands are about one-half "muskeg," as some suppose, yet the balance is a perpetual forest, which will reproduce the species of wood most suitable for the manufacture of paper, and if properly treated it will eliminate much of the danger of the coming shortage in the world's supply. —Paper Trade Journal Convention Number.



FOREST PRESERVATION.

R. O. Sweezy, B.Sc., gave an address on the 5th ult. before the Quebec Branch of the Canadian Society of Civil Engineers. In showing some of the conditions of the present situation as regards the preservation of forests in the Province of Quebec, he said:—

As engineers the question of conservation and utilization of forest resources is one which commands our attention, while as citizens we must feel justly proud of such a resource upon the conservation of which depends also our other great natural resources, viz., the waterpower.

In possession of these two resources Quebec Province is second to no other country in the world. Nevertheless, the alarm has been sounded. There is not a man among us who has not felt the ruffle of annoyance as he reads articles in the press and technical papers on the deplorable ravages which carelessness fosters; and thus under our very eyes the wealth of the greatest timber country is wasted.

In the face of urgent demands for conservation, what must be done? We are constantly being told, and we know from our own sense of observation, that our forests are in danger of extinction.

How, then, can we arrest this impending evil?

But a moment's reflection will suffice to point out to us the destructive agents to be overcome. These are the lumberman, the agriculturist, and, most destructive of all, fire.

The lumberman, we know, is responsible for the destruction of the greater portion of the pine forests in the evolution of which is shown an example of the survival of the fittest, the fittest to survive in this case being the spruce and less valuable woods, which thrived while the selection was going on. The reason for the destruction and present scarcity of pine is evident when we consider the fact that pine seeds at a very great age, and, if being cut down before reaching that stage, naturally the chances for a new growth are eliminated.

It must be remembered, too, that some of the best timber areas of the past are now classed as excellent farm lands, showing how the farmer followed the lumberman and destroyed the younger growth before it could reach maturity.

The average citizen, perhaps, believes that the present large lumbering and pulp and paper manufacturing establishments holding extensive timber lands are responsible for the alarming, though vague, state of affairs relating to the forestry situation of to-day—a very erroneous belief, indeed. Rather it is these corporations which protect the timber lands from destruction and wasteful methods; and the larger the limit-holding corporation the better it will be in this respect for the policy of forest preservation. It is the owners of small limits scattered through the country that should be feared. To them, in their limited means, a policy which requires the spreading of their small capital over a great number of years is assuredly not enticing. Their profits must be made quickly; hence the necessity of taking all that is of any value from the limit. On the other hand, it is necessary and profitable for the large limit-owner to

assume a policy which will ensure an inexhaustible supply to his large and expensive plant. Thus we have in Quebec large limit holders as the Price Bros. Co., Limited, Laurentide Pulp and Paper Co., the Quebec and St. Maurice Industrial Co., who are doing more to preserve the forest than the Legislature is doing. It might be mentioned here, however, that the laws of this Province forbid the cutting of anything under seven inches on the stump, imposing a heavy fine on the offender. This is vigorously enforced in the St. Maurice region, while, unfortunately, in other parts of the Province few of the lumbermen are aware of the existence of such a law.

But now, having mentioned a few limit-holding companies, let us look into the conditions under which they are working. Take, for example, the Q. and St. M. Industrial Co., which owns at least some 1,600 square miles of excellent limits on the St. Maurice. On a conservative estimate these limits will average fifteen cords per acre. This company purposes building at La Tuque, on the St. Maurice, a pulp and paper mill to consume a quantity of 40,000 cords annually. The wood is mostly all spruce, which, as we know, will grow from seed to a size of about twelve inches in one hundred years, thereby growing about fifteen cords per acre in that time. Figuring, then, on a basis of fifteen cords per acre as the present quantity on the limits, we see that it will require the annual cutting of the equivalent of less than four and a quarter square miles in area to supply the mill, by which we see that it would take about three hundred and fifty years to go over the whole 1,600 square miles, showing theoretically that about three times this quantity could be cut annually without endangering the limits. Of course, the need of a margin is apparent in an asset of this kind; but this, at least, shows that the large corporation is not to be feared as an agent of wastefulness, especially, moreover, when we consider the scientific precautions they are taking to preserve their limits.

It might be interesting to note now the value that timber lands annually acquire. Allow, again, the estimate of fifteen cords per acre, which will grow in one hundred years, and allow the value of \$2 per cord for standing timber, we find that nature endows the forest with an annual increase in value of \$200 per square mile.

The actual market price of timber limits is not, as we know, up to the equivalent of the value of the standing timber thereon, but let us see how this price has been affected of recent years. Four years ago arrangements were complete for the sale of a tract of some 1,400 square miles at a price of \$600,000 when the death of the principal buyer broke off the deal. About two years later another deal matured for the sale of the same limits at \$800,000. Again, some circumstance arose which prevented the deal going through. This week a party enquiring the price of the same limits for a prospective buyer, was informed that one and a half million dollars is the price.

While the investment of such large capital tends to compel a policy of judicious management and conservation, yet we have to contend with the allurements of supplying raw material to hundreds of American mills. This is how small limit-holders are induced to destroy forests, while, if they were amalgamated into several large concerns, the evil would disappear. As an example of this evil the area south of the St. Lawrence, in the Province of Quebec, speaks for itself, where the depletion of forests has resulted in the drying up of river and stream. Every farmer owning an acre of timber land finds that it pays him to sell such wood to American buyers, a course for which little blame can be attached to him. True, the area mentioned has been largely turned into profitable and rich farms, but if the depletion had been confined to good farming areas sufficient forest area to largely guard against the present deplorable state of the rivers would have remained.

The ravages of the agriculturist have

been felt not only to the south of the St. Lawrence, but also to the north and throughout most of the lumbering parts. The shameful abuse of colonization privileges is responsible for the loss of many millions of dollars in timber values. And unfortunately the Colonization Department surveyed lands through parts ideal for forestry purposes, but poorly suited to the needs of the farmer. What better inducement, therefore, to the French-Canadian jobber to register claims for several well-timbered lots, in his name and the names of his many sons, and clear off all the timber in a profitable winter's work. In an endeavor, then, to make a bluff at clearing land he must needs set fire to a small patch. The fire spreads to the "bucher," and with alarming rapidity the agent of devastation is soon licking up miles of green timber.

If we can keep away the fire, then the problem of forest preservation is solved.

We have seen what a vast heritage the Quebec forests represent in dollars alone, yet could we believe that less money is expended to preserve such an asset against fire than is spent for the fire protection of the Provincial Parliament Buildings, which are valued at some \$3,000,000 as compared with 2,000 millions of forest value.

It would be simple enough to protect the forest against fire if the proper measures were taken.

First, railway locomotives must use spark arresters, or the right-of-way through forests must be thoroughly cleared of inflammable debris for a distance of a couple of hundred feet on both sides of the track. The colonist must not burn his clearings closer than one hundred yards to standing bush, while this space must be thoroughly cleared of inflammable material.

The trapper, the explorer, the prospector, etc., are also responsible for many destructive fires, simply through carelessness, but with a comparatively small police force in summer this danger can soon be eliminated. It has been suggested that the bush man who sets fire should be dealt with as a criminal.

This is rather harsh and absurd, for we know that probably 95 per cent. of such so-called criminals would go "scot free" before a jury. Rather impose a substantial fine upon the chief of party who is negligent in regard to extinguishing fires after meals in the woods and we will soon find that little danger is to be feared on this score.

Another important step which must be taken quickly is to decide on the apportionment of territory to be set aside for forestry purposes, in order further that the agricultural areas should not suffer.

There are very large areas practically unfit for farming, yet we find the pioneer there struggling for an existence and endangering a territory from which nature would expel him and retain for the growth of the conifer.

Of course, it is always easy for the critic to make grand rounded suggestions, but nevertheless the fact remains that our natural resources are threatened with destruction. Certainly the appointment of a permanent commission of Canadian-trained forestry engineers and political economists would do more to arrest the destruction of natural resources in this and other Provinces than all the prospective conferential suggestions that the Hague is likely to offer us.

While England is contemplating the expenditure of some 460 millions pounds to establish a forest smaller than many of our lakes; while France is spending 140 million dollars for similar purposes, and while the United States is consuming three and a half times more than she is growing, Canada is merely looking on at the impending catastrophe.

We most assuredly can save our natural resources to the utilization and profit of the nation and the whole world, for surely no man will say that we have not the brains and means to do it.



ST. LAWRENCE PAPER MILLS.

An important incorporation under Ontario laws is that of St. Lawrence Paper Mills, Ltd., with a capital stock of \$150,000 and head office at Cornwall.

This is the company which has taken over, through the Trusts & Guarantee Company, Ltd., Toronto, who were the liquidators, the factory and plant of the Cornwall Paper Manufacturing Company, Ltd., situate at Mille Roches, near Cornwall, Ont. The sale price was \$95,000, payable \$85,000, in cash and \$10,000 face value of an issue of bonds of the new company. Isaac H. Weldon, a Canadian, who in recent years has been connected with the pulp industry in the United States, is president of the new company, and S. F. Duncan, formerly secretary-treasurer of the Bryant Paper Company, of Kalamazoo, Mich., fills a similar position in the purchasing company. It is stated that the purchasers purpose increasing their present book plant, and installing machinery for the manufacture of other lines of paper. Among other stockholders are Frank H. Milham, A. B. Connable, C.A. Peck, S. B. Monroe, C. H. Hayes, W. L. Loveland, Ralph Emery, J. B. Balch and Charles Buss, all of Kalamazoo. The latter gentleman has been appointed superintendent. The mill is turning out 40 to 60 tons per week of coated paper for Ritchie & Ramsay.

It is said that the owners of the power have advanced their claim that they are not compelled to supply power under the old contract which they had with the Cornwall Paper Manufacturing Company. This contract, it is believed, was at exceedingly advantageous rates to the paper mill. It may be remembered that Mr. M. P. Davis, of Ottawa, was one of the prominent shareholders of the old concern, his interest in it having however arisen out of the fact that he was deeply concerned in the sale of water power, and, hence, encouraged the erection of factories and mills of all kinds which would become users thereof. He naturally has not the same interest in the new as he had in the old concern. The above is given merely as a rumor and is in no way confirmed. Doubtless a difficulty of this nature would not long delay matters as the power is there and it would only be a matter of getting together on price.

PAPER MILL WASTE.

The reclamation and utilization of one of the waste products of Wisconsin's many paper mills, an oil sometimes called "spruce turpentine," is the subject of experiment in the engineering laboratories of the University of Wisconsin, at Madison, Wis. It is believed that the oil, which is a by-product of the pulp manufactured, can be used to advantage as a denaturing agent for alcohol in its various applications, and as a fuel for internal-combustion engines, and experiments to determine its value have been begun under the direction of Professor A. W. Richter of the department of experimental engineering.

Three students of the college of engineering who are writing their senior theses on an investigation of the merits of both the crude and rectified forms of the oil as a fuel for gasoline engines have remodelled an ordinary gasoline engine, such as is used for power purposes on the farm and in shops and factories. They designed and installed an attachment to the engine consisting of tanks, pipes, and valves through which oil and alcohol are fed into the cylinder of the engine mixed with compressed air to form a fine spray having the necessary explosive properties for internal combustion.

During the past three months, in addition to their regular college work, these three students have, under the direction of Professor A. W. Richter, designed and constructed the additions to the engine which made possible the experiments. Two tanks were placed one above the other at the side of the engine, the upper feeding the mixed oil and alcohol into the lower, where it is put under pressure and fed by means of a pipe and valves into a specially constructed admission valve into which compressed air is conducted through another pipe. The compressed air mixes with the oil and alcohol and forces it into the engine cylinder in a very fine spray. The amount of oil introduced at one time, and the pressure, can be regulated by the operator through the sys-

tem of valves constructed by the student designers, and the introduction of the oil can be made at any desired point in the engine stroke.

Samples of both the crude form of the oil, which is a red-brown, and the rectified, which is a clear, pale yellow, were obtained from a paper factory for the experiments. Tests in the chemistry laboratory show that fully 85 per cent. of the oil is not turpentine at all but cymol, a substance clearly related to the benzol used in Germany with alcohol to overcome the disadvantage of the thermal difference between the alcohol and oil as a fuel. Benzol is impracticable for use in America, as the illuminating gas works, of which it is a by-product, are so widely scattered that sufficient quantities are not isolated at any one place. Thus this so-called "spruce turpentine" oil is being experimented upon to see if it may not be used in the place of benzol.

It is not definitely known what amount of the oil will be available for commercial purposes, in case the experiments prove it valuable. About fifty barrels annually is the amount obtained from a 25-ton mill using only slabs, which are poor in turpentine. What the output would be from mills using round timber, which contains the pith and sap in which there is a much larger amount of the oil, has not been ascertained. As pine stumps may be utilized in making the oil, the discovery of a commercial use for the product will be of particular importance to Northern Wisconsin, where there is much timber of that sort for which there is no present market.



PULP LUMPS ON CARDBOARDS.

It often happens when cardboards are made on a long wire machine that lumps of pulp as large as a cherry-stone are formed on one or both edges. When these are flattened out at the dry end by the couch and other rollers they not only spread inwards over the board,

sometimes reaching to as much as six inches from the edge, but they prevent a uniform pressure being exerted over the whole width of the web. Every paper-maker knows how important it is that this pressure should be exactly the same all over the paper. Nothing is gained by cutting off the edge afterwards. That gets rid of the lumps, certainly; but it entails great waste, and has no effect upon the injury inflicted by uneven pressure.

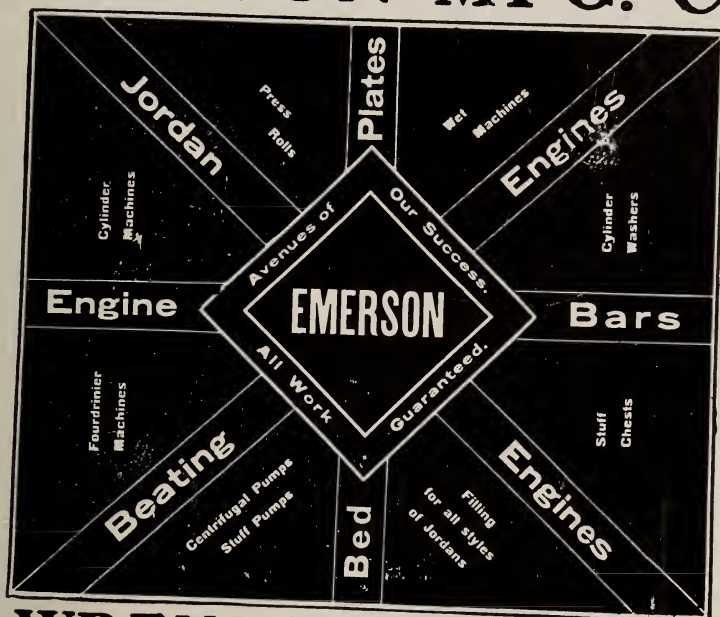
These lumps never occur except in slow-running machines, say, eight to ten yards per minute or less. The usual method of preventing the escape of pulp from the apron except on to the wires is sufficient for fast-running work, but with the low speeds required for cardboard making it is not properly effectual. Pulp escapes unless some special means are adopted, and then by accumulating on the edge of the wires it produces the lumps in question. The remedy is obviously prevention, by making the parts of the apron fit more closely together and to the deckle strap.



A POINT ABOUT STRAW PULP.

A writer in the "Papier Fabrikant" states that he received a consignment of straw pulp so white that he made sure it had been loaded with blanc fixe, starch or some other white foreign substance. On grinding up the pulp it turned grey. As the pulp contained no trace of chlorine it had evidently been very carefully freed from that body, so that the cause of this change of color was at first a mystery. It subsequently transpired, however, that the maker had used antichlor to neutralize the chlorine and to save rinsing. Hence, sulphate of lime was formed from the lime of the bleaching powder, and it is well known that the presence of the sulphate has a greying effect during the grinding of straw pulp. The pulp in question gave 1.5 per cent. of ash, chiefly consisting of calcium sulphate.

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KRAFT BROWN EXPERT, who has introduced Kraft Brown into 4 Scandinavian mills, 6 English mills, is willing to consider any offers for Canada or the United States, either for permanent or temporary situation. Can also introduce Grease-proof or other papers. Highest references.—"AVAN," c/o Pulp and Paper Magazine, Toronto, Canada.

WANTED BY SWEDE.

Swedish gentleman is open for engagement in Canadian mill. Experienced in Swedish processes of pulp and paper-making, and has worked on Kraft papers. Understands sulphate method and recovery of waste from sawmills for pulp purposes. Is capable of constructing sulphate pulp mill for bad wood, wastes, etc. Address Box 10, care "Pulp and Paper Magazine," Toronto, Canada.

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CANADIAN PRESS ASSOCIATION.

At the Convention of the Canadian Press Association, held in Toronto last month, a resolution was passed as follows:

"That this Association reiterates its opinion that it should be the policy of the various governments to deal with the spruce and other forest resources of the country, as well as secure the largest measure of direct permanent benefit to the country as a whole, from these resources; and that the executive be requested to keep in touch with the situation created by the introduction of the Payne Bill in the United States, with a view to insuring that the interests of the publishers be safeguarded, and that these interests are not made subsidiary to other considerations. That this Association is further of the opinion that with a view to providing for the future there should be as little delay as possible in the adoption by the Government of an enlightened and comprehensive policy of forestation."

Another resolution was to the effect "that in view of statements that there seems to be a combination to control prices among the makers of paper in Canada, the executive be directed to make inquiries into the conditions existing, and take such action as will protect the interests of members."

John Norris did not allow the opportunity to slip to carry his warfare against the paper manufacturers into this country. He addressed the gathering, stating that the newspapers of Canada and the United States are paying from forty to fifty millions of dollars yearly more than they should for paper, and that he had often been quoted Canadian paper at from \$1.75 to \$1.85 f.o.b. at the same time these same Canadian manufacturers were charging Canadian newspapers from \$2.05 to \$2.10 per cwt. Canadian printers were thus, he said, paying from 25 to 30 cents per cwt. too much for their paper. He added that the United States manufacturers, using machinery and methods behind the times, virtually increased the cost of paper. Going into details, he said that by failure to have expert chemists in the factories to see that the best use was made of all material in making and that the best returns were secured for by-products, a waste of several dollars per ton took place.

Mr. Norris gave figures which indicated that if the very best systems of paper-making, such as are in operation in Great Britain and Germany, were employed on this side of the Atlantic, print paper now selling at from \$40 to \$45 per ton would be sold at from \$28 to \$35 per ton.



THE MARKETS.

Toronto, April 10th, 1909.

The pulp market has not improved to the extent expected. While the demand in Canada is fairly good, the onward movement of business in the United States, which was observable a month or two ago, seems to have received a sudden check. One well-known man in the pulp and paper trade in the United States is reported to have remarked the other day that business is actually worse to-day than at any time during the last two years. Doubtless the tariff controversy and the hesitation consequent upon its delay in settlement are responsible for

this state of things. Naturally, however, it is having considerable effect on the pulp situation in this country. Water-powers are in good condition and all the pulp needed can be ground. While holders are firm as a rule in their demand for \$17 for ground-wood, and sometimes 50 cents more than that, we have heard of cases where offers to sell at \$2 less than that have been refused, for the simple reason that buyers did not care to stock at all. Sulphite is quoted at about \$42 at United States mills, and it has been brought in in considerable quantities from Scandinavia at a cheap rate. Paper stock is weaker than it was a month ago, mixed being quoted at \$8.50. Rags are quite dull. Prices for paper remain about the same. Wrappings are selling a little more freely at the recent reductions.

British Market for Pulp.—There is considerable inquiry for long-date contracts in Mechanical, but makers are not very eager for such business, in view of the increasing cost of timber, says *World's Paper Trade Review*. The prospect of mechanical pulp being admitted free to the States, and the consequent trend in that direction of pulp which otherwise finds its way to Europe, has, of course, an important influence on the European situation. In sulphite pulp, although values keep low, it is obvious that such a situation cannot long continue, as very few mills can run without loss at prevailing figures. Many of them will have to stop unless an improvement takes place.

The market for chemicals is quiet. The export demand is rather better. Ammonia alkali, 58 per cent., is quoted £4 10s.; bleaching powder (soft wood), £4 5s. f.o.r.; caustic soda, 76-77 per cent., £11, Liverpool; soda crystals, £2 17s. 6d.; salt cake, £2 f.o.r.; and recovered sulphur, £5.

The market for home rags is quiet, with very little demand.

Scandinavia.—Sulphite has been selling at very low figures, it is reported. Soda pulp is in lighter stock. Chemical pulp is dull.

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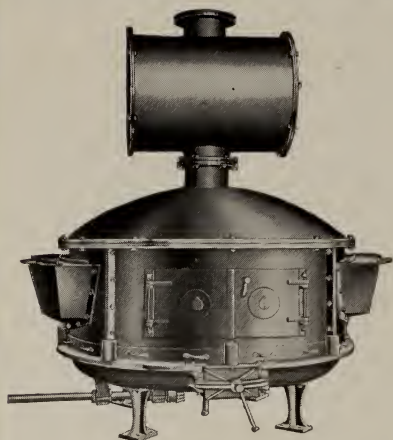
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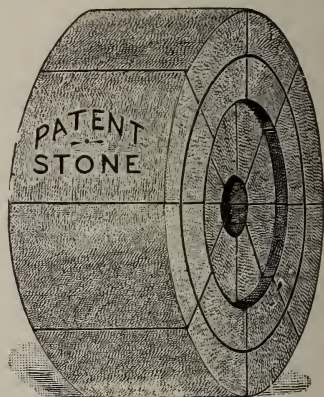
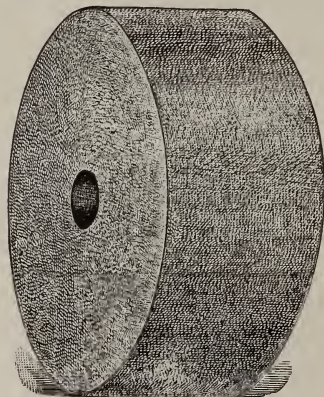
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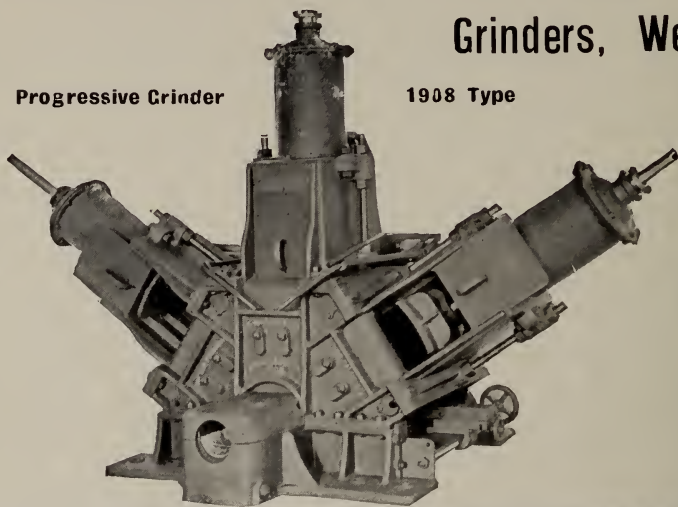
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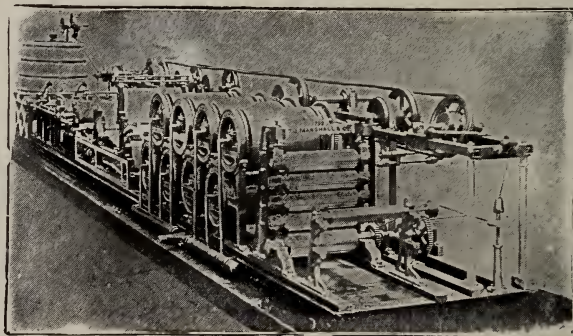
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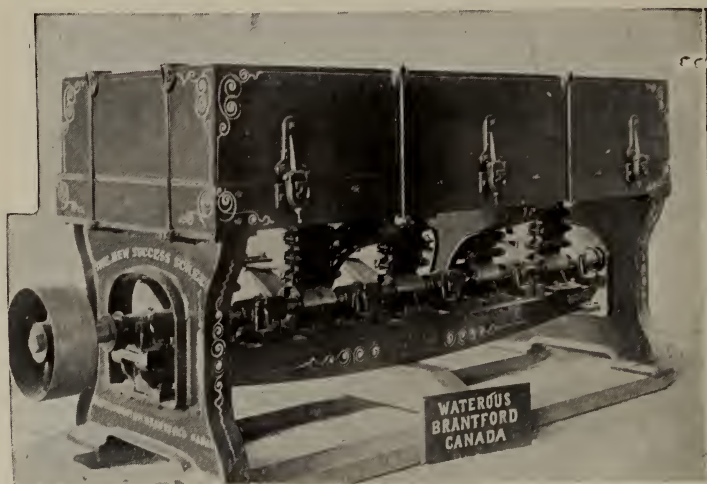
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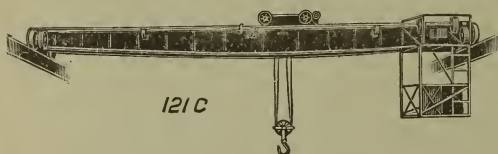
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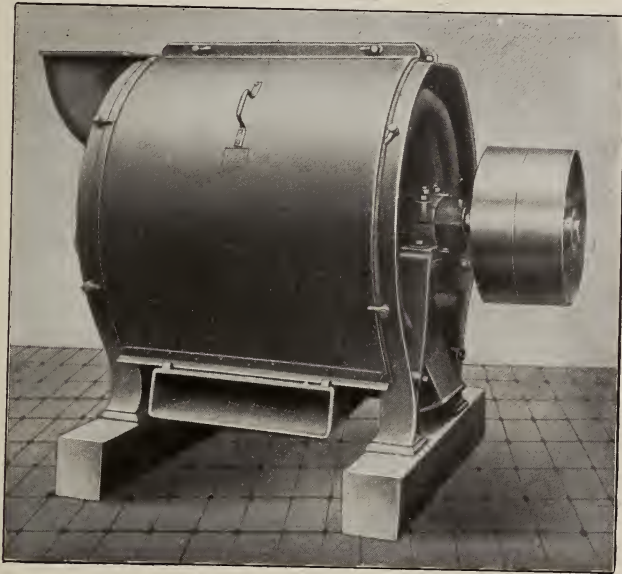
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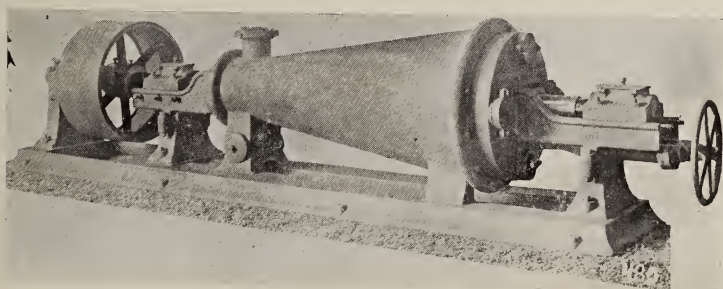
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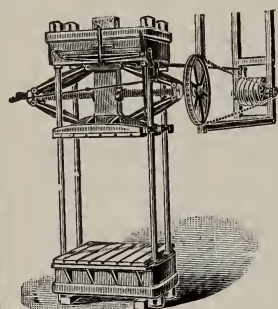
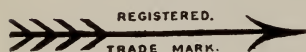
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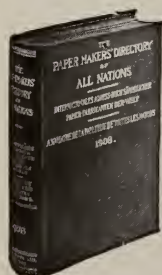
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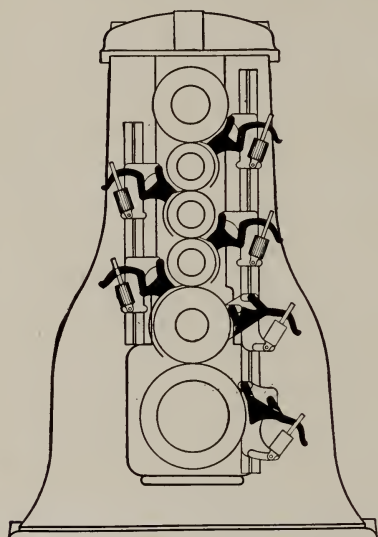
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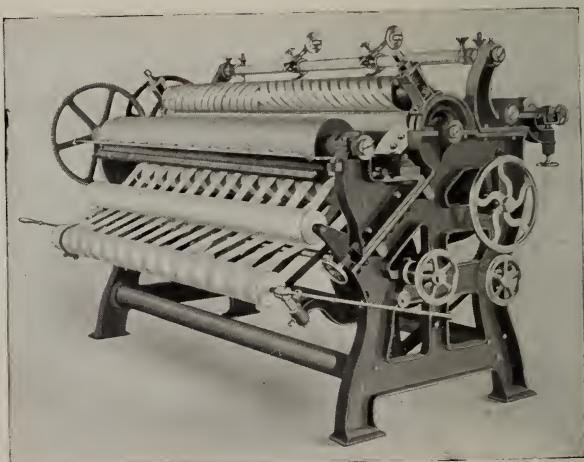


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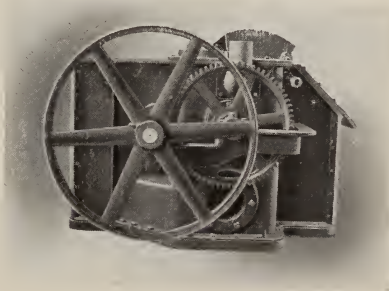
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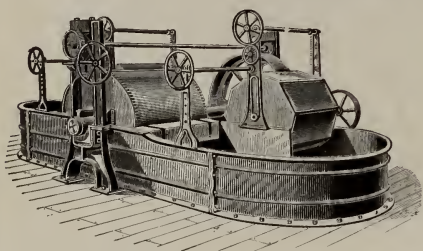
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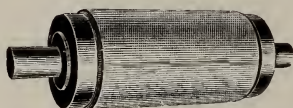
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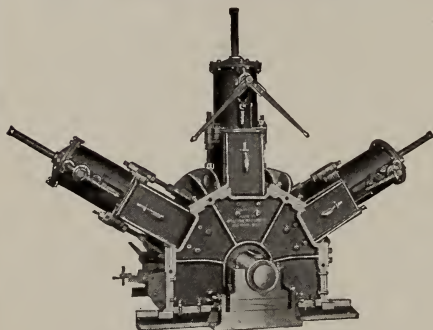
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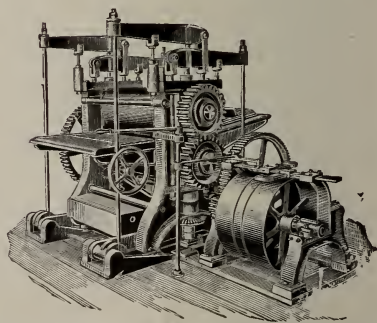
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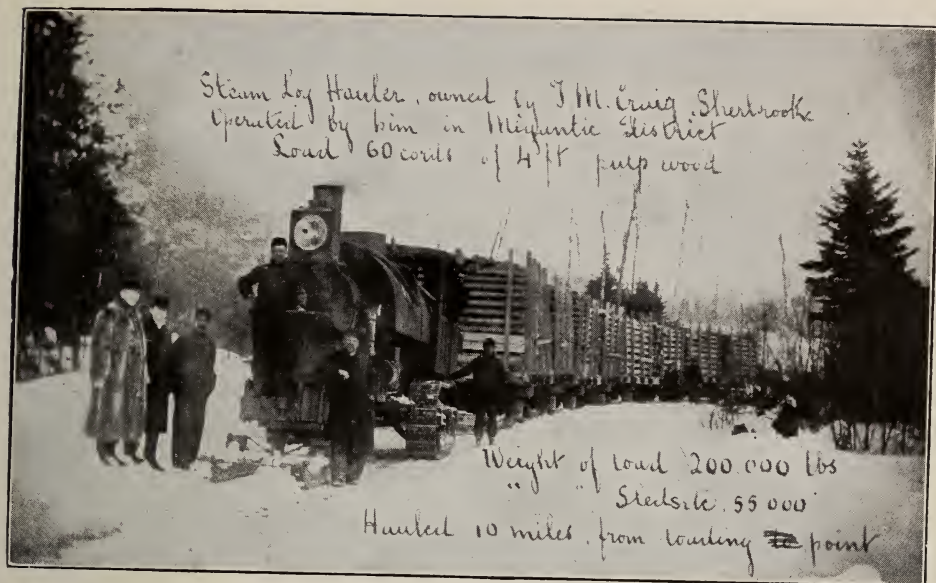
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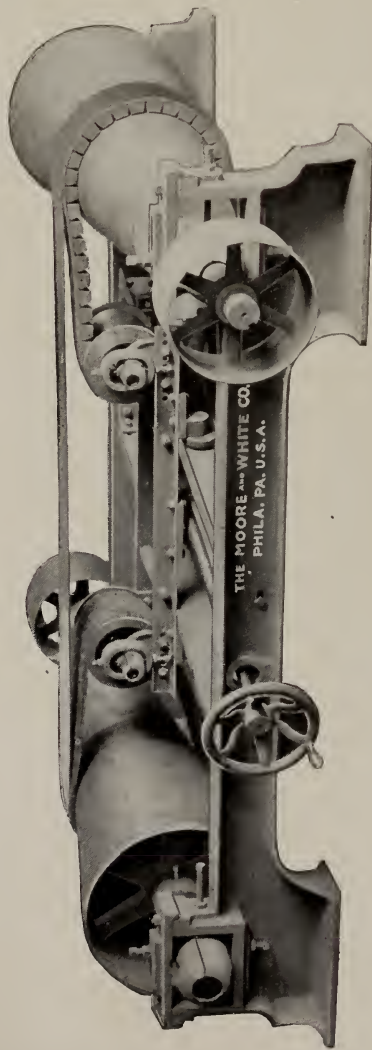
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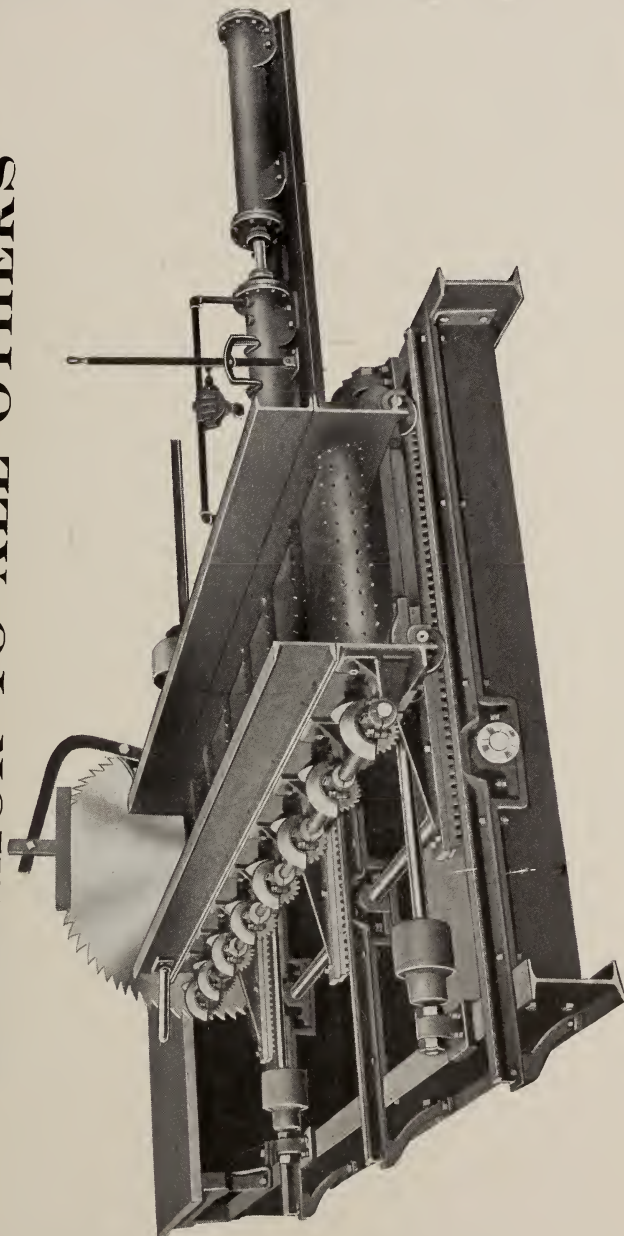
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Vol. 7.—No. 5.

TORONTO, MAY, 1909.

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Pulp and Paper Magazine

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RELATIONS WITH THE UNITED STATES.

Some surprise has been expressed both in Canada and the United States that the Dominion Government has shown no sign of taking action in respect to the proposed lowering of the United States tariff on Canadian pulp and paper in return for certain concessions or rather for the absence of certain restrictions. In reply to questions in the House, the Minister of Finance replied that the Government contemplated no discussion with Washington for the reason that proposals in the United States Congress and Senate could not be dealt with, because as yet they were in a very unstable indefinite form. And this is so.

Nobody knows whether the proposals for reduction of the American duties on paper and of the practical abolition of duties on pulp will ever become law, wholly or in part. The Senate committee, it is stated, is actually considering the leaving of the rates of duty on pulp and paper almost as they were under the Dingley tariff or with only a very small reduction. Under these conditions of uncertainty it would be folly therefore for Canada to make any overtures to the United States.

Even, however, if the proposed reductions had been actually made, we do not believe that public opinion in this country is by any means favorable to restricting our own free hand. There is absolutely no inclination on the part of Ontario to abrogate its present restrictive legislation against the export of pulp logs. In Quebec, the proposed American changes seem to have had the effect of whetting the people's appetite to follow Ontario's example. In fact, the hanging of the sword of Damocles over the heads of Canadian provinces to make them good and do as Uncle Sam wants them seems to be having rather the effect of a boomerang. And while this proposed legislation was calculated in a measure to set the provinces one against the other in order to take advantage of its terms, it has certainly in greater

measure set papermakers in the Western States against those of the East, owing to the way in which it discriminates between their respective sources of wood supply.

But while few will cavil at the Canadian Government for not immediately opening negotiations with Washington, it is to be deplored that they are sitting still and doing nothing with regard to the better conservation of our pulp-wood resources. The American Government, even if its methods are not particularly wise, is at least attempting to do something for the future of its forests (even though it be at the expense of Canada's). Meanwhile we do nothing except wait and allow things to take their course, which in the end means a golden opportunity wasted. We have the wood, the Americans need it for their mills. We should make the terms in no enmity to them but with a clear view to our own future.



THE MEANING TO QUEBEC.

While there are many indications that the Province of Quebec will shortly fall into line with the rest of public opinion in Canada, and do something drastic to prevent its pulp-wood resources from being shipped away for the enrichment of a rival nation, it must be confessed that the chief obstacle to the enactment of prohibitory legislation by the present Dominion Government lies in the supposed views of the French-Canadian habitant. There is one point, however, which we believe may have been overlooked by our French fellow-citizens, and that is a feature which was touched upon briefly by that clear-sighted manufacturer, Carl Riordon, in a recent interview. Not only textile mills but many of the paper mills in the Eastern States are manned by French-Canadians, good hard-working people who during the last fifteen or twenty years have moved to the United States because there was not sufficient remunerative employment in their own province. Many of these are

busily engaged in working up into paper logs that were cut in the Province of Quebec, some of them possibly from their own farms or the farms of their own fathers. These French-Canadian papermakers, it is true, find employment in the United States, but it is on raw material which came from Canada. Why should they not find similar employment in their own country? The Province of Quebec has enormous areas of pulp-wood, many of them almost unsurveyed. With proper regulations properly carried out, these resources would be utilized in the country possessing them, instead of building up the paper mills of a foreign country. These would have to move to the place where they could obtain ready access to their raw material. And what would be the result of this? The building up of the Province of Quebec to such an extent that not only would new villages and towns spring up on every side but all its sons would find ready employment at a remunerative occupation. And not only this, but large numbers of those who have expatriated themselves for lack of such employment, would be recalled to carry on their industry within the borders of their native country. We believe that when our French-Canadian brethren in the Province of Quebec gain a true idea of what is really involved in this truly national policy of keeping our country's resources at home for its own benefit, they will be among the foremost in urging its adoption. Commercially and socially, and from every point of view of united family life they will be the greatest gainers.



QUEBEC PAPER MANUFACTURERS AND THE PROPOSED UNITED STATES TARIFF.

When the paper manufacturers doing business in the Province of Quebec understood the nature of the proposed changes in the United States tariff and their possible effect on the pulp-wood

resources of the Province they at once took steps to discuss the matter with the Provincial Government, and a deputation, which included Carl Riordon, representatives of the Booth & Eddy mills, and several other manufacturers, waited upon Sir Lomer Gouin and his ministers. The proceedings are described to the Pulp & Paper Magazine by one of those present, as follows:—

"A small deputation, representing all kinds of paper and pulp and lumber companies, and accompanied by members of the Legislative Council and Legislative Assembly, waited on the Quebec Cabinet last month and interviewed them concerning their policy as to the exportation of wood from their Crown Lands.

We pointed out to them that the question was now brought up by the remodeling of the United States tariff, and that the United States Government and manufacturers admitted the industry there depended on Quebec wood and that Quebec needed industrial development badly.

We reviewed the situation in detail, proving these facts.

In view of the fact that they were practically in control of the situation we thought it was proper that they should declare their intentions in regard to the export of wood from Crown Lands in order that the United States Government might shape its tariff accordingly, and we said we thought that they should prohibit the exportation of wood from Crown Lands unless the United States Government removed the tariff on all kinds of paper and pulp from Canada. We pointed out to them that other grades of paper and pulp were fully as important to them as news and ground wood because in many districts where they have wood they have not got power, notably on the south shore, and so this wood could not be used for news or ground wood.

We said that we did not need this action as an assistance to us although we would profit by it, but that we did not consider that this latter fact should

prevent us from laying the situation before them considering that we were in a position to know more about it than they or anyone else. We also pointed out to them that the Province as a whole was much more interested in the adoption of such a policy than we were.

The Premier stated that he did not think the Government controlled the wood export as he thought that there were not more than 100,000 cords of Crown Lands wood in the 1,000,000 that were exported last year. He also stated that he would like to hear from all the pulp and paper makers in the Province.

We feel certain that there are about 300,000 cords of wood exported from Crown Lands, although the returns do not show it, as the operations of several well-known limit holders who are exporting wood amount to considerably over 100,000 cords, and there are a number of others besides these."

It looks as if, while the Quebec Government recognize they have no right to interfere with the general fiscal policy of the country, they see the implied menace to Canadian manufacturers in the proposed Washington tariff and will do what they can to obviate it by other methods, for example, by imposing a high stumpage tax on pulp-wood cut for shipment to the United States. This the Provincial Government has, of course, the right to do without interfering with the jurisdiction of the Federal Government, and it would practically prohibit the export of wood and ultimately bring about large American paper mill investments in Quebec Province.

To show how this matter is regarded by United States publishers, we reprint a circular just received from Herman Ridder, President of the American Newspaper Publishers' Association. It is, in part, as follows:—

"Newspaper publishers should understand that if the pulp and paper rates of the new tariff bill are not made satisfactory to Canada, there is a possibility either of the prohibition of the export

of pulp-wood from Crown Lands by the Province of Quebec, as the Province of Ontario has done, or that Quebec will raise its stumpage tax on the exported pulp-wood to a prohibitory figure. A delegation of Canadian paper manufacturers recently called upon Premier Gouin at Quebec to urge prohibition. Approximately, one million cords of pulp-wood are obtained annually by American mills from Quebec and New Brunswick. If Canada's demand for free print paper in exchange for its free pulp-wood is not seriously considered by the United States Senate, the paper panic and high prices of 1907 will not be comparable with the prices which American newspaper publishers may look for in 1910. The three-cent paper, which papermakers were planning in 1907, would be a reality.

In ten years, the United States Government has not been able to coerce the Province of Ontario from its attitude of prohibition, and that refusal is forcing Western mills to abandon newsprint manufacture. It will be recalled that the paper panic of 1907 was precipitated by the action of the Wisconsin mills, which were unable to buy in Ontario, and which bought 50,000 cords of pulp-wood in Quebec, hauling it to Wisconsin, a distance of 1,400 miles.

If the Federal Government failed to move the Province of Ontario, is there any assurance that it would be more successful in coercing Quebec, in case that Province should follow Ontario's example?

The New England and New York papermakers, who should be most deeply concerned in propitiating and satisfying Canada, seem to be energetic in antagonizing and irritating that source of supply. They own over 12,000 square miles of timber limits in the Province of Quebec alone. They say that prohibition of the export of pulp-wood would be equivalent to confiscation. They declare that prohibition would ruin many of their mills, yet they persist in urging a plan to bar out Canada's manufacture of pulp-

wood. Their policy is unexplainable, unless it be that those who are directing this policy of trade warfare are owners of large spruce tracts in Maine, where the values of speculative holdings would instantly advance."



BRITISH PAPER EXPORTS.

British exports of paper to all countries during March amounted to £234,560, an increase of £28,980, compared with March 1908. The chief increases were: Writing paper, £3,743; printing, £26,316; wrapping, £3,567; coated, £3,567; coated, £3,139. In hangings there was a decrease of £4,830, and in unclassified papers, £0,377.

During the period January to March, however, this year there, was an actual all-round decrease in value, the total of £592,000 being a decline of £17,740, compared with the same period of last year. Under this heading, writings are responsible for a decline of £8,660, hangings £7,238, while there were increases shown in wrappings, £7,976, coated £5,440, paste, mill and cardboard £12,873, envelopes £3,486. During the first 3 months of the present year Canada took 2,312 cwt. of writing paper valued at £4,597, the United States took 882 cwt. worth £2,891, Australia took 13,314 cwt. valued at £23,143. This shows that Canada imported £2,235 worth of British writings more than was the case during the first three months of 1908, and the United States about £550 more. Most other markets showed a reduced buying capacity.

The chief paper export of Great Britain is printing paper. In the first three months of 1909, these were exported to the amount of £109,039 to foreign countries and of £167,540 to British possessions, both showing a slight increase over last year. Canada took 12,279 cwt. valued at £16,035, an increase of £6,538 over last year.

CURE FOR PAPER FAMINE?

F. P. Veitch, of the Leather and Paper Laboratory of the Washington Government, who issued a report recently on Papermaking Materials and their Conservation makes some suggestions for the alleviation of the paper scarcity which, we think, scarcely throw much light on the problem. We all recognize the increasing scarcity, at anyrate in the United States of spruce, the chief source of material for mechanical pulp. But when the author talks glibly about the large quantity of wild and cultivated straws and grasses, and of flax fibres, etc., he does not really throw much light on the problem of how they are to take the place of pulp-wood, at least on a profitable scale. Paper can be made from probably hundreds of different materials, and has been made from scores. The problem is to make it profitably from them. Academic statements of bare facts do not help very much. Another suggestion made is that paper users should economize, should make up their minds to do with less paper than they use at present, and should be educated to demand a better quality than that supplied on the average at present, so that it would last a longer time. Wastefulness is to be deplored, of course, but the paper industry as an industry is hardly likely to be helped by a policy of restriction.



PERMANENT CONSERVATION COMMISSION.

It is satisfactory, so far as it goes, to learn that the Dominion Government, acting in accordance with a recommendation of the Convention called in Washington by Theodore Roosevelt, to consider the best means for conserving the natural resources of the North American continent, is about to create a permanent commission with this object. Hon. Sydney Fisher, Minister of Agriculture, in introducing the bill for this purpose, stated that the commission, which will be honorary, will comprise thirty-two

members, twelve of whom shall be ex-officio members, three members of the Ottawa Government, and 1 representative of each of the Provincial Governments, such representative as a general rule to be the Minister in charge of Lands, Forests and Mines. The other members of the commission would be appointed by Order in Council. It is proposed to hold an annual meeting each January, and meetings to be called at the instance of the chairman. It is not very clear as yet what will be the scope of the commission, nor how far along practical lines its duties will be allowed to evolve. But there is no doubt it will be able to fill a very important office, and it is to be hoped that its powers will not be limited to a merely academic exposition of principles. What is needed is some authority to prevent the national resources from being encroached upon, not merely to protest against their spoliation and to talk against the ruinous consequences of the same fifty or a hundred years hence.



—John Norris' latest move is a circular alleging to show how Labor was treated by the papermakers "and how they were refused a share in the so-called tariff bounty." He asserts that while the tariff on newsprint, as on other manufactured products, was fixed avowedly to protect and advance the pay of labor, no advance was given in the paper industry. He also asserts that paper mill workers in all parts of the United States are paid an average of only \$1.55 per day which is less than that accorded any other class of organized labor. Another charge made by Mr. Norris is that while the papermakers based their 1907 increase in price of news print paper to \$50 per ton, upon the representation that the cost of labor had been increased 50 per cent. by reason of the change of hours from twelve to eight hours per day, the fact is that only 29 mills had changed to this system, and that 215 had continued on the twelve hour system.

PULP AND PAPER NEWS

The premises of the Union Card & Paper Company, Montreal, were last month damaged by fire to the extent of \$30,000.

* * *

The Colonial Wood Products Company has about completed the concreting of the new tunnel for its pulp mill at Thorold, Ont. Machinery is now being installed at the new mill.

* * *

The Delany & Pettit Sandpaper Company, Toronto, are authorized to increase their capital stock from \$50,000 to \$100,000.

* * *

James De Wolfe, for stealing junk from the Miramichi Pulp & Paper Company, Chatham, N.B., was sent to gaol for a month.

* * *

The St. John Pulp & Paper Company's mill at Mispec, N.B., had to close down a few days last month owing to insufficiency of fuel.

* * *

The Lincoln Paper Mills, St. Catharines, Ont., now only work till noon on Saturdays, the usual dinner hour being curtailed in consequence.

* * *

The Powell River & Construction Company has started work on the construction of its sawmill and pulp mill opposite Texada Island, B.C.

* * *

The premises of T. H. Reason & Co., paper box manufacturers, London, Ont., were damaged by fire and water last month to the extent of \$15,000.

* * *

The Hercules Specialty Company, of Grove City, Mich., making toilet paper and other sanitary articles contemplates building a factory in Guelph, Ont.

* * *

Mr. James Davy has recently installed a third "Ruth" centrifugal pulp screen

in his mill, making a model installation of the "Ruth" centrifugal screen.

* * *

The Toronto Paper Manufacturing Company's mill at Cornwall, Ont., resumed operations last week, the water having been again let into the canal.

* * *

During last season the arrivals at Portland, Me., of steamers from New Brunswick carrying pulp-wood numbered 31, their cargoes totally 55,000 cords.

* * *

The Markland Mill, Hartville, N.S., is finding a good market for its wrapping paper in the Maritime Provinces and is shipping considerable quantities of pulp to England.

* * *

The Thorold Pulp Company have recently installed a very fine rope drive equipment for operating their grinders, and have otherwise greatly improved their mill equipment.

* * *

A report which we have been unable to confirm states that the Pont Rouge (Que.) mill of the Montreal Paper Company has been sold to F. W. Bird & Son, of East Walpole, Mass.

* * *

The building and installation of machinery for the Don Valley Paper Mills, Toronto, are now nearly completed, and they are expected to be ready for operation in about a month.

* * *

This season about 7,000 tons of pulp have been carried over the Halifax & South Western Railway, to be shipped to England. The pulp trade for the next two months promises to be large.

* * *

The Nova Scotia Power & Pulp Company, Ltd., will shortly be incorporated with an authorized capital of \$500,000. Among those interested are Sir Freder-

ick W. Borden, Ottawa; W. G. A. Lamb, Toronto; A. S. Burgess, of Canning, Ont., and Leslie S. MacCoun, of Ottawa.

* * *

Judge Davidson has issued notice to creditors that all claims must be filed with the liquidator by the 17th inst. Frank Powell, the liquidator is now in charge of the plant.

* * *

The St. Raymond Paper Company, whose liquidation was referred to in last number, is likely, we understand, to be reorganized with larger capital.

* * *

During the past six months the Campbell Lumber Company, Weymouth, N.S., have shipped 5,000 tons of pulp, valued at \$85,000. The D. A. R. handles the shipments and it took 196 cars to haul the pulp to Halifax.

* * *

Some 2,000 or 3,000 cords of pulpwood belonging to the Tobin Manufacturing Company broke away from the boom constructed on the St. Francis River, near Brompton, Que., at considerable loss to the company.

* * *

Robert Hickey who has been in the employ of William Barber & Bros., paper manufacturers, Georgetown, Ont., for the past forty-six years, has severed his connection with that firm and has gone to Roanoke Rapids, North Carolina.

* * *

J. R. Booth the veteran lumber, pulp and paper manufacturer, Ottawa, was indisposed for a few days last month through catching cold while superintending the installing of machinery at the paper mill, but, we understand, has now fully recovered.

* * *

Reports have been rife that the Lake Superior Corporation, through its recent reorganization by the Fleming syndicate had come under control of the C.P.R. This is absolutely denied, however. Meantime plans are being formed for a speedy development of the property.

The White Bay Timber & Pulp Company, Ltd., Toronto, capital \$250,000, has been incorporated to buy and sell and deal in timber, pulp and pulp-wood, erect saw and pulp mills, etc. Among the names mentioned in the Ontario Gazette are J. H. Spence, barrister, Abraham Singer, student, both of Toronto.

* * *

At the Anglo-Newfoundland Development Company's mill at Grand Falls, Newfoundland, fifteen pumps ranging in capacity from 3,000,000 to 6,000,000 gals. have just been installed. They were made by the Lawrence Pump & Engine Company, Lawrence, Mass, which has orders on hand for several other paper mills.

* * *

R. H. Campbell, superintendent of forestry, suggests to the committee on forests and waterways that a belt of land from the Crow's Nest line to the international boundary, and from the British Columbia line fifty miles eastward should be reserved and the cut governed. There are about twelve million acres available.

* * *

Pulp Screening Reduction Company, Montreal, capital \$150,000, has been granted a Dominion charter to manufacture groundwood and sulphite pulp, paper, cardboard, etc., and to operate mills for this purpose. E. F. Surveyer, A. Chase-Casgrain, and J. W. Weidon, advocates, of Montreal, are chartered members.

* * *

In connection with the voluntary liquidation a year ago of the Menzie Wall Paper Company, New Toronto, Ont., a statutory meeting of shareholders and creditors took place a few days ago. The report of T. W. Horn and J. J. Gibson, Toronto, the liquidators, was considered quite satisfactory. It is stated that a dividend is likely to be declared within the next six months.

The Ontario Government gave out the important contract for school readers for the Province to the T. Eaton Company, Toronto, who have heretofore mainly confined their printing department to work on its own departmental store catalogues, etc. For the first edition, about 100 tons of paper will be required. Negotiations are said to be under way for the invitation of tenders for the separate school readers, to conform to the lessened price for the ordinary school readers.

* * *

James Beveridge, of the New Brunswick Pulp & Paper Company, Millerton, N.B., has been in Toronto looking up business. He reports prospects quite satisfactory. The mill is running full time and is turning out first-class Kraft papers, in sheets and rolls, which, judging from samples he showed the Pulp & Paper Magazine, are fully equal to the paper made in Scandinavia. At this mill they have got the manufacture of Kraft paper down to a thoroughly scientific basis, and there is every indication they will meet with great success.

* * *

Great preparations are being made by the Gordon Pulp & Paper Company, Dryden, Ont., for resuming construction of their pulp mill buildings by Contract-
or Beatty. The plans exhibited show the building will have a frontage of 600 feet, adjoining the C.P.R. track. Fifty feet of concrete foundation was done on the plant last fall. The remainder of work and the superstructure will be completed this year. When finished the building will be the largest of its kind in western Canada. In addition the company's brick yard will also be operated on a more extensive scale.

* * *

The Macleod Pulp Company, Ltd., Liverpool, N.S., has started up its board mill with a four-cylinder machine turning out 10 tons per day. The output of pulp will be increased during the coming year to 100 tons per day, and in course of time it is expected that all this will be converted into paper. A new steam

plant is now being put in and driers and other machinery will be added later on this summer in order to increase the capacity of the board mill to 12 tons per day. The president of the company is John R. Macleod, while R. B. Livermore, formerly of Schuylerville, N.Y., has been appointed superintendent.

* * *

Further particulars are to hand regarding the British Pulp Company, of Newfoundland, which proposes to build large pulp mills at Hawke Bay, at the mouth of Torrent River, on the north side of Newfoundland. It proposes to obtain a 90-year lease to cut lumber on an area of 295 miles and also lease the water powers on Torrent River. The capacity of the plant is 30,000 tons pulp (dry weight) per annum. The cost of wood and of transporting same to mill is calculated at a very low figure. First development plans call for the installation of three units of four grinders each, though it is possible four units will be put in at once.

* * *

✓ The Ontario Gazette contains particulars of the incorporation of the Northumberland Pulp Company, Ltd., Campbellford Ont. It is authorized to carry on, with a share capital of \$100,000, all branches of a pulpwood and lumber business, to construct and operate pulp, paper and lumber mills; to acquire water or other powers, etc. The provisional directors are named as follows: Irving S. Fairty, H. Toothe Hunter and E. Warner Wright, all of Toronto.

It is expected to have the mill ready for operation in September next. It will have four grinders, with a capacity of say 9,000 to 10,000 tons per year, the motive power being furnished by electric drives.

* * *

The Ottawa Pulp & Paper Company is still in process of liquidation, Mr. Jolly the secretary and manager being in charge. This company own the patent on a process for recovering and utilizing the waste screenings of pulp mills

and operated machines in this process at Ottawa. The plant is now being disposed of. The control of the stock of the company has been acquired by Alex. Pringle of A. Pringle & Son, civil engineers, of Montreal, who will probably form a new company and have the machines made under contract for sale to pulp manufacturers. Lack of capital was apparently the difficulty with the old company. It is understood that the machines which have been operated as an adjunct to other mills have proved very successful.

* * *

The Manson Manufacturing Company, of Thorold, Ont., have been appointed sole agents in Canada for the Wardel rotary screen, so well known throughout Europe as a paper stock screen. There are over 4,000 of these screens in use in the paper mills of Great Britain and the continent. The Ruth centrifugal pulp screen, for which the Manson Manufacturing Company are Canadian agents, is steadily making its way in Canada as well as in the United States. Among the mills now using the Ruth screen are the James Davey Pulp Company, Thorold, Ont., the Thorold Pulp Company, the Nicolet Falls Pulp Company, Danville, Ont., Chicoutimi Pulp Company, North Shore Power Railway and Navigation Company, Clarke City, Que., Pelgo-Canadian Pulp and Paper Company, Shawinigan Falls, Que., and the McLeod Pulp Company, Liverpool, N.S.

* * *

Some doubt has been expressed as to the reports of heavy purchases in Newfoundland of spruce lands by William R. Hearst, with the ultimate object of manufacturing paper on a large scale. It is confirmed in some degree, however, by the following report from E. D. Arnaud, Canadian Trade Commissioner in that island:—"I have been informed by reliable authority that an agreement has been entered into between the Colonial Government and W. R. Hearst, of New York, by which the latter has secured an area of 1,000 square miles of pulp-wood

lands in the vicinity of Bay d'Espoir, Hermitage Bay, South Coast, Newfoundland. The intention is to construct extensive pulp and paper mills costing \$10,000,000, with a capacity of 400 to 600 tons per day. Mr. Hearst will employ from 2,000 to 3,000 men and his annual wage bill is estimated at \$2,000,000. He proposes to run steamers from the island to New York to convey the product to the United States, one of the advantages being that this Newfoundland harbour is open the year round."

* * *

The bill in the New Brunswick Legislature to incorporate the Tobique Pulp & Paper Company is meeting with lively opposition. The section allowing the company to maintain piers and other obstructions in the St. John River has been taken out, and the height of the proposed dam has been reduced from 50 to 40 feet above low water level. To offset the claim that refuse from the mill would pollute the Tobique, a provision has been added to the bill, which calls for the construction of a sewer from the pulp and paper mills so to be erected to the St. John River of sufficient capacity to carry off all liquids or waste matter from said pulp mill, which may contain acids or other chemicals injurious to salmon or other fish going up or down the Tobique River. Another new section of the bill calls for the company to forfeit its rights unless it shall bona fide commence construction of pulp and paper mills and electrical power houses, etc., within a period to be named by the committee, and expend in construction thereof at least \$150,000 within a period which it is also left with the committee to name.



LARGE PULP MILLS FOR NEW BRUNSWICK.

Sir William Van Horne has left for England with the object of interesting English capitalists in a scheme for establishing in New Brunswick, in connection with the Grand Falls water power,

what are described as the largest pulp, paper and sawmills in Canada. It is planned to spend about seven million dollars in the establishment of this concern. The project is the same as the one put forward some years ago by the Grand Falls Power Company, the other interests being held by the estate of the late United States Senator Proctor, by Mr. Underwood, vice-president of the International Paper Company, William Mackenzie and R. B. Angus. Sir W. Van Horne in speaking of his plans said: "We have not by any means abandoned our plans in respect to Grand Falls. We had plans made some years ago for the complete development of the water power at that place and for the erection of by far the largest paper mills in Canada—mills of more than twice the capacity of those of the Laurentide Paper Company. The delay in carrying out the plans was caused partly by some troubles concerning the extension of the charter, partly because of trade depression and partly because another concern had tried to secure control of the situation at Grand Falls. His company had been perfectly willing to sell out, but the other company had failed to materialize. The result is that the original scheme will now be put through as soon as possible.



LETTER FROM MONTREAL.

Montreal, May 8th, 1909.

Carl Riordon, general manager of the Riordon Paper Mills Company, Ltd., is one of the prominent members of the trade who believe that Canada is in control of the situation. In this connection, he quotes Chief Forester Pinchot, of the United States Forestry Department who says that it is highly important that country should have Canadian pulp-wood in the future as in the past, and that Canada should not impose an export duty on pulp-wood, inasmuch as the pulp and paper trade industry of the United States is in a different position to the other great wood-using industries, it being possible for the latter

to be supplied wholly from the home forests, while the pulp and paper industry must have free access to the Canadian spruce forests.

Mr. Riordon commends the Ontario law prohibiting the export of logs from Crown Lands but giving the farmer liberty to export his own logs, and says that such a law would be quite satisfactory for the province of Quebec if it were only put into effect. The trouble is in the administration of the colonization law. Settlers are being employed by American pulp and paper makers to evade the law. They apply for location tickets on Crown Lands and, by erecting a lumbering shanty, evade the provision calling for the erection of a house. They fulfil the requirements calling for the clearing of ten acres of timber, but they do so by cutting it in the interest of the American pulp and paper man, and shipping the timber over to him. Having fulfilled their mission, they may profitably abandon the property without taking out their patents or cultivating the land. Engaged in the pulp and paper industries, which are thus enabled to thrive across the border, are thousands of Canadians who would return to perform the same work in Canada if the existing laws were only properly administered. "Some idea," said Mr. Riordon, "of the extent of the spruce forests of Canada may be gained from the official estimate of the Province of Ontario alone, these amounting to 288,000,000 cords. This applies, I understand, more especially to that portion of the province lying north of the Canadian Pacific Railway. As for the Province of Quebec, no reliable figures have yet been compiled, to the best of my knowledge. It is said, however, that more spruce exists in this province than in Ontario. To obtain figures on the quantity available should be one of the works of the near future. The consumption of spruce in North America is estimated at about 3,000,000 cords per annum." Mr. Riordon considered that nothing but good could come of the influx of American pulp and paper mills in Canada, and he hoped to see a

movement in this direction before very long.

In connection with the liquidation of the St. Raymond Paper Company, it is believed in pulp and paper circles here, that an effort will be made to establish the industry on a solidier basis than before, and that to this end considerable new capital will be invited. It was generally rumored that the company failed because of lack of water-power during the dry season of the year. The company has issued a statement in which this is denied, or explained. In reality, what was wanted was more money in order to install machinery by which full advantage might be taken of the existing power. During the period of high water, at least 15,000 horsepower flows by the mill and is wasted, and it is claimed that had the company's pulp department been equipped with certain machines indispensable to the utilization of this waste water, it would have ment a very large profit to it. For this purpose a larger number of grinders would be necessary, and to supply this, the sum of \$20,000 would be required. Had it been possible to make the purchase of these grinders, the company would have been in a position to manufacture a sufficient surplus of pulp during the period of high water to keep the paper machines busy the year round, there being plenty of water even during the dry season to keep the paper machines operating. The result would be, as applied to the year 1908, that instead of manufacturing 4,582 tons of paper the company would have manufactured 7,500 tons, and instead of providing a surplus of \$25,000 from operations to meet interest and other changes, a surplus of \$80,000 to \$100,000 would have been provided. Further details supporting this claim are as follows: Manufacturing cost, per ton, for the 1908 output \$28.13, to which add freight of \$2.70 to Montreal and a net cost of \$30.83 Montreal is result; selling price in Montreal \$38 per ton; mill profit \$7.17 per ton, or \$32,852.94 on the 4,582 tons. Operating costs, plus interest on bonds, amounted

to \$9,720; interest on bank loans \$14,704.23; bills payable, renewals, \$5,394.08; other charges, such as office expenses, rent, taxes, deductions for overweight, storage, etc., \$19,732; a total of \$49,550. This changed the profit into a loss of \$16,697 on the year's operations. The contention is that, because of the lack of the grinders necessary to provide, during the high water period, the surplus pulp necessary to the continuous operation of the paper mill during the year, the total product of the mill was cut down to three-fifths of what it should have been. The additions to the pulp department may be made at a cost of \$15,000 to \$20,000, and the mills might then count on a steady production of 25 tons per day, at a manufacturing cost of \$24 per ton, Montreal, including salaries, rent, taxes and office expenses. This would give a yearly output of a value of \$180,000. Three-fifths of this output, or 4,500 tons, are sold under contract, at \$38, amounting to \$171,000 per annum; the remaining two-fifths, or 3,000 tons should sell at \$40; but accepting \$38 as the price, \$114,000 is added, or a total of \$285,000. This would give a surplus of \$105,000. Out of this would have been paid in 1908 \$9,720 interest on bonds; \$14,704, bank interest; interest on bills payable, \$5,394; interest on the additional capital referred to \$1,200; all the other charges \$19,732; this would make a total of \$50,750, thus leaving a net profit of \$54,250.

David F. Robertson, general sales agent for Canada, of the Northumberland Paper Company, Campbellford, Ont., has just returned from a trip in the interest of his firm. He reports the paper box trade to be in a very satisfactory condition, demand being now better than it has been at any time for a year or more past. The Northumberland Paper Company has recently introduced into Canada a new branch of the paper industry, having just completed the installation of a plant for the manufacture of mill board, binder board and trunk board. Heretofore all the board of this

nature has been imported into Canada from outside, mainly from the United States but also from Europe. The requirements for this class of board in different industries of Canada are considerable, and the Northumberland Company, through the connection it has established in the box board trade, will be in an excellent position to cater to the market. The plant is the only one in Canada and will be able to turn out about 10 to 15 tons per day, of the very best grades. The plant is of the most modern type, having only been selected after a trip of inspection through the best plants in America.

There have been no changes in the price of paper in Montreal during the past month. The general tone of the market for pulp is reported easy, it being claimed that the pulp mills are rather anxious to push sales. It is claimed that there is no trouble in making purchases now at \$14 to \$16 at the mills for prompt delivery, although for future delivery the mills are firmer in their views. This indicates the general view taken by the trade. It would appear that the activity which was expected to develop around the beginning of April did not materialize, and, as a result, the trade was feeling rather pessimistic for a period. However, during the past few days, the situation has again altered and more active buying is looked for at any moment. It is thought that the influence of the somewhat more acute depression in the United States was responsible for the feeling here, when taken into conjunction with the backwardness of the season generally. Navigation has again opened, however, and the weather has become more favorable, although it still continues backward. From this forward, the crop conditions will be largely in control, and it is to be regretted that these, at the present moment are none too bright, either in Canada or the United States. The recent tariff discussions in the United States, and the evident anxiety of Americans to have the duties lowered, have drawn the attention of Canadians to

the fact that the key to the pulp and paper situation in America is held here. The result is that there is a general sentiment towards prohibiting exports of the raw material altogether. Until the matter has been definitely decided by the people to the south, however, it seems unlikely that legislative action of any nature will be undertaken by Canada, so that matters will probably remain as they are for the time being.

Dealers in rags and paper stock report that the somewhat buoyant feeling for a few months ago has apparently subsided and that it has been replaced by a moderate to full demand. Prices show no alteration this month, as compared with early in April, quotations between dealers being as follows:—

	Per 100 lbs.
Best white shirt cuttings.....	\$4.00
Mixed colored shirtings.....	2.50
Dark shirtings	1.00
Mixed rags	0.70
Mixed cottons	0.90
Sat'nettes	0.50
Old bagging	0.40
Lindsey rags	0.80
Manilla rope	\$1.75 to 2.00

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CANADIAN FORESTRY ASSOCIATION.

It is announced by the Canadian Forestry Association that that body has at length taken the important step of appointing a permanent secretary in the person of James Lawlor, who will have his office at 11 Queen's Park, Toronto. Mr. Lawlor has had very considerable experience as a newspaper man in Toronto, Ottawa and Winnipeg. Moreover he has always taken a keen interest in forestry questions, so that the appointment is looked upon as one likely to result in great benefit to the cause which the Association has at heart, the better conservation of Canada's forest resources. He is likely to spend a good deal of time in lecturing before clubs, boards of trade, local associations, etc., in different parts of the country, and, no doubt, these talks will be popular and

will do much to make the masses of the people familiar with the problems involved.

Mr. Southworth, who has been elected president of the Association in succession to Hon. W. B. Snowball, looks for a year of progress in forestry matters. Sir Wilfrid Laurier, it is understood, will call a convention to meet in Montreal in the fall and the Canadian Forestry Association expects to hold a summer meeting in Regina, and its annual meeting in Fredericton, N.B., next March.



IMPERIAL PAPER MILLS.

The long standing liquidation of the Imperial Paper Mills of Canada, Limited, Sturgeon Falls, Ont., has now brought forth a new complication. The bondholders are asking the courts to grant them the right to offer options on the timber limits, with a view to selling them. And now the unsecured creditors both in Canada and England step in and contend that they should rank equally in the distribution of the assets. They claim that the original company forfeited its rights in the timber limits when it failed to carry out its agreement and before renewing it. The Government is in a position to dictate on what terms the distribution of the assets from the sale of the limits should be made. The Government are said to be disposed to set aside a certain sum to be divided amongst the unsecured creditors, but the amount is believed to be not large enough. The amount due to unsecured creditors has been estimated at \$400,000.

The first bondholders advanced \$500,000 and the mills and machinery vested in them. The second issue of bonds was for \$1,000,000, but it is stated that in the sale of them they brought much less than par, just how much has not as yet been given out. There was a subsequent issue of \$600,000, but this was said to be by some arrangement within the corporation. The banks that advanced money towards the company were secured by ranking on the pulp-wood cut, and it is held that in the event of the Government

putting aside a certain sum for the benefit of the unsecured creditors the banks would not rank upon it.

An approximate estimate that has been made would, it is claimed, yield the first bondholders about 90 per cent., the holders of second bonds about 10 per cent. and the unsecured creditors from 6 to 8 per cent. This, however, is merely surmise, the amounts depending on the prices which the limits would realize. Among the many rumors floating around concerning this company is one to the effect that a Chicago syndicate has offered \$1,250,000 for the whole property. The Ontario Government is looking into the status of the company with a view to renewing its lease of limits, or declining to so renew it; as it has been asked to do by unsecured creditors by a recent deputation of the latter.



—The annual report of the Union Bag Company, made public a few days ago, shows fairly satisfactory results for last year's business, considering the trade depression. For the year ending January 1909, the net earnings were \$1,088,963, a decrease of \$187,796. The regular preferred dividends, amounting to \$440,000 were paid and \$99,416 added to sinking fund. At the annual meeting Alex. McLaurin, of Montreal, manager of the company's woodlands was elected a director. Edgar G. Barratt is president and W. L. Sparks, secretary. In the president's address we note the following remarks: "The Canadian properties, aggregating 2,550 square miles, are able to supply us with our present requirements of pulp-wood. It is a source of satisfaction to know that sales of lands in our immediate neighborhood in Canada have been made recently at prices much higher than the amounts paid by us for our properties. In Canada a trained forester from Scandinavia is regularly employed, and every effort is made to properly conserve our woodland holdings. No white spruce less than 11 inches in diameter is cut, leaving a large number of young trees constantly developing for future operations."

BRITISH COLUMBIA PULP AND PAPER COMPANIES.

The British-Canadian Wood Pulp and Power Company has opened fine offices in Victoria. It is now putting up a large pulp and paper mill at Howe Sound, in the northern part of Vancouver Island, which is expected to be in operation within two months. It will manufacture chemical pulp for use in book and ledger, tissue and tinted, and high grade news print. The chief organizer of this company was Greely Kolts. At the first general meeting of the company, held recently in Vancouver, the property and assets of the company, according to the annual report, amount to \$232,056, and the total outstanding stock, including options sold by Greely Kolts, the fiscal agent, to approximately \$280,000. The machinery and buildings represent an expenditure of \$133,662. S. G. Faulkner, the president, said the company had got its splendid plant almost ready for operation, and they would start with a working capital of approximately \$100,000. In all probability a good start will be made at the end of July.

The Western Canada Wood Pulp and Paper Company, Limited, promoted by the same gentleman, in association with Col. H. Appleton, of Victoria, Jos. McPhee, of Cumberland, Eng., F. A. Marshall, of London, Eng., is about to erect a large pulp and paper mill, as before stated in these columns, at Quatsino Sound. It will confine itself to the manufacture of pulp, building, wrapping and roofing paper. The sulphite plant and one unit of the paper mill are expected to be in operation by December 1st next. The company has leased under very favorable conditions about 90 square miles of timber lands about 175 miles north of Victoria, and comprising spruce, hemlock, cedar and balsam. A Fourdrinier machine will be installed very soon, as well as a combination machine for the manufacture of building, wrapping and other kinds of paper. Peter Morgensen, consulting and architectural engineer, recently arrived in Victoria to take charge of construction on this new building.

EARLY HAND-MADE PAPERS.*

By Clayton Beadle and Henry P. Stevens.

Since all paper up to the introduction of the Fourdrinier machine at the beginning of the last century was made by hand, the subject of this communication deals with any kind of paper made up to that period.

By hand-made paper is meant all paper made on a hand-mould by a vatman in the manner described in text-books. As far as we know the procedure has been the same, at least in general principle, since the first sheet of paper was made, possibly more than 2,000 years ago. One of us read a paper before the Society of Arts on the subject of water-marking, in which some reference was made to the early history of paper-making. By the aid of this and the bibliography of water-marks subsequently published in the *Journal*, those who care to pursue the subject can obtain a great deal of detailed information, more particularly on the historical side. Very little, however, is known in this country in regard to the texture and composition of papers of early dates. We shall briefly, after noticing a few somewhat conflicting historical references to the antiquity of paper, refer to the researches done on the Continent on the composition of early papers, give some particulars of the early French papers, and finally add a few remarks on the composition of early German papers, a large number of which are contained in a private collection belonging to one of us. It is supposed that the Chinese first wrote upon bamboo boards, but that from about B.C. 150 to A.D. 150 the usual material was paper made from silk waste prepared by an unknown process.

An American writer affirms that the Chinese were acquainted with paper 123 B.C., and that the merit of the discovery is attributed to the Marquis Tsai, a Minister of Agriculture under the Han

*Read before the Society of Arts, London.

dynasty, who is said to have invented and taught in a complete manner the art of papermaking from the mulberry and bamboo, as well as from pieces of hemp, old ropes, and fishing nets. Tsai Lun was born in the Province of Hu-nan, and in A.D. 89 was in charge of the Imperial arsenal; the date of his discovery of paper is placed by a Chinese chronicler at A.D. 105. The Chinese seem to have kept the art of papermaking secret for many centuries, for it is not until about A.D. 610 that a knowledge of it was taken to Corea and thence to Japan. The Arabs acquired their knowledge through their conquests in Tartary, and probably at the capture of Samarkand, and it is said to have been introduced at Mecca in the same year, viz., 707. The Moors brought the art of papermaking to Europe early in the eleventh, or possibly the tenth century. The Moors, at the same time, very much improved the treatment of rags for papermaking. We gather this from Koops, who says:

"The Christian disciples of Moorish papermakers, who, since 1085, were in possession of Toledo, and in 1238 of Valencia, worked the paper mills to more advantage than their predecessors; instead of manufacturing paper from cotton wool (which is easily recognized by its being brittle and remaining always yellow), they made it of cotton rags in moulds through which the water ran off; for which reason it was called parchment cloth."

It is not quite clear why paper should be called parchment cloth in consequence of the change of manufacture and raw materials unless it is that paper made from rags and better treated on the mould might be of a harder and more compact nature; that from cotton wool would naturally be very spongy.

Montfaucon examined MSS. on cotton paper in A.D. 1050. The oldest known linen document in Spain is a treaty of peace between the King of Aragon and Spain, A.D. 1178.

Speaking of the Moors, Prescott says: "The manufacture of paper . . . was

derived through them. M. Casiri has discovered many manuscripts of cotton paper in the Escorial as early as 1009, and of linen paper of the date of 1106." Paper mills are recorded as being in operation in Toledo, making rag paper in 1085. The first manufacture in France is put at 1260. Paper is recorded as being made in Italy in 1367, while linen paper was commonly used in Germany in 1324.

This country was from 1685 much indebted for improvements in papermaking to the Huguenots, who are supposed to have first produced white paper in 1690.

Of the work of identifying the composition of paper of early dates, that of Wiesner is of particular importance. Wiesner asserts that the so-called cotton paper (*Charta bombycina*), which is said to have preceded the rag papers, never existed, and that rag papers were not discovered in Europe, but may be traced back to the Arabs in the eighth century, not long after they had learned from the Chinese the method of making a felted paper.

At that time the paper was sized with starch, as was also the case for a considerable period in Europe, but the practical method of sizing with starch was lost in Europe during the fourteenth century. We think we can, from samples we have examined, disprove Wiesner's statement that the use of starch in paper was not re-discovered until after the production of machine-made paper.

In the second of Wiesner's papers the following conclusions were arrived at:

The oldest papers from East Turkestan of the fourth to the fifth century consist of a mixture of crude bast fibres from the bark (or outer bast fibres) of various dicotyledonous plants. The bast fibres were converted into paper pulp in a crude mechanical manner.

Similar mixtures are found from the fifth to the seventh century, but during this period papers are found consisting of rags reduced in stamps, and well-macerated bast fibres.

Some of these papers were produced in

such a manner that they could be written upon, by the use of gypsum as a backing, by sizing with gelatine from mosses, and finally by the use of starch. While formerly Wiesner could only trace back the use of starch to the old Arab papers, he subsequently traced it through the East Turkestan papers further back to the Chinese.

In the seventh and eighth centuries there alternate papers from crude fibres, generally the bast fibres of various plants and mixed rag and bast fibre papers. The maceration process was improved, but rag papers contain a crude stamped product which is more or less easily distinguished from the accompanying crude bast fibres.

The old Chinese papers from East Turkestan are distinguished from the old Arab papers not only by the crude bast fibres which are found with the rag fibres, but also by the powerful mechanical treatment to which the rag fibres have been subjected.

The Chinese must be regarded as the discoverers of starch sizing. The same method was later on used by the Arabs, who also employed raw starch in admixture with starch paste, thus using the former in the modern technical sense of a "filler."

There were very great difficulties in determining with exactitude the botanical derivation of the fibrous materials in the papers examined. In some cases it was quite impossible to decide the kind of plant from which the fibre was derived, yet it is quite certain that the fibres found in the papers from East Turkestan were entirely derived from the bast fibres of dicotyledonous plants. Among those identified with certainty were the raw fibres of *Boehmeria* (ramie or China grass, or an allied plant), linen and hemp; the bast cells of *Boehmeria*, *Moraceæ* (paper mulberry bast fibres and allied plants), and *Thymelaeaceæ*.

According to Karabacek, the Arabs learnt the method of making paper from the Chinese in the year A.D. 751, but the oldest Arab paper examined by

Wiesner was of the year 796, by which time the Arab art had considerably advanced.

Only the dates of a few of the old East Turkestan papers (from Oxford) could be fixed with certainty. In other cases the date could be estimated with more or less accuracy, and in general the results of the microscopic investigation confirmed the dates attributed to the papers. An old Chinese paper from East Turkestan, of the year 768 A.D., is the oldest paper of which we have the exact date and which contains rag fibres, and also the oldest with exact date which is sized with starch. A yet older paper discovered by Dr. Aurel Stein is now in the British Museum.

Wiesner's more recent work comprises the examination of four manuscripts of the eighth century—of these, the exact dates of two are known, viz., A.D. 782 and A.D. 787; the other two are certainly older and belong at the latest to the first half of the eighth century, probably earlier than 719.

These papers were discovered by Dr. Stein in the Taklamaka desert of Turkestan. The results confirm the previous conclusions, viz., that the Chinese at an earlier date than the Arabs made papers from the bast fibres of dicotyledonous plants using a proportion of rags as a substitute, and that the Chinese were the first to use starch for sizing paper.

The four papers comprised in the above mentioned communication consist of:—

(1) A Chinese document dated A.D. 782.

The fibres, which include those of the paper mulberry, consist of dicotyledonous bast fibres without any cotton. The paper is unsized.

(2) A Chinese document dated A.D. 787. Fibres as in No. (1). The paper is partially sized and contains unaltered starch granules (probably wheat or barley).

(3) Thibetan manuscript. First half of eighth century. Fibres consist of the well macerated fibres of bast of *Thyme-*

laceæ. Contains a considerable quantity of unaltered starch (rice).

(4) Document in unknown language, the local dialect of the Khotan region in the eighth century. Fibres of bast of dicotyledonous plants (probably including *Boehmeria*) and well macerated, with possibly the addition of rags. Sized with starch paste.

England made no paper prior to the reign of Henry VII. The paper used came probably from Germany, Flanders and France. Some knowledge of the state of the industry as it might have affected the importation and use in this country can be obtained from records, say, of France or Germany.

During the sixth century papyrus was largely used in France. At the end of the seventh century parchment had largely replaced it. The cotton paper (*papier de damas*) used by the Orientals in the ninth century appears to have reached Europe in the eleventh century, but there is no record of its having reached France. The rag paper known in Europe in the thirteenth century was not known in France until the fourteenth century. This rag paper (*papier de chiffé*) was made of old linen, hemp, or flax. It is recorded that in 1189, Raymond Guillaume, Bishop of Lodève encouraged the construction of several paper mills in St. Herault at the end of the fourteenth century. The mills of Essonnes and of Troyes were in a flourishing condition. These early French papermakers established their factories on the borders of streams in districts where they cultivated and spun hemp.

In 1469 the authorities of the Sorbonne invited certain German craftsmen to demonstrate the printing machine. They trained pupils who went to work in the paper mills, thus showing that the arts of papermaking and printing were carried on side by side. Encouraged by Louis XI., the papermakers and printers increased, and the processes were known and practised throughout France.

The rag paper (*papier de chiffé*) made in France in the fourteenth century is

thick, transparent, and stained with spots of water; its uneven surface is very evident both in appearance and feel. The laid-marks are coarse and wide apart, the water-marks large and roughly shaped. The paper is light grey rather than white.

Certain fourteenth century papers used in the South of France are soft and "warm" in color, the water-marks and chain-marks being rather indistinct.

French papers of the fifteenth century show a marked improvement. They are more supple. They are more even in texture, owing largely no doubt to improvements made in the beating. The laid-marks and chain-marks are thinner and nearer together. The paper is good, and, according to Midoux and Matton, always well sized. These authorities failed to find a single sheet of paper made in France in the fourteenth and fifteenth centuries without a water-mark. All water-marks during these centuries were simple, the compound marks not coming in till the next century.

It has been suggested that the custom of water-marking originated in France, where, in the fourteenth century, it was made compulsory for the manufacturers, by the authorities, to seal all their goods with a particular mark by which they could be recognized, and which served as a guarantee of its good quality and its origin. All paper had to be inspected and passed, and any maker who failed to register in this way was liable to a fine. The controllers, known by the name of "Eswards," evidently performed their duties in a thorough and conscientious manner. These marks had to be distinctive and well-known signs for the purpose of indicating the qualities and sizes of the different papers. In early days in France, as in other countries, the makers appear to have produced practically only one quality and size of paper; possibly this was imposed upon them by the authorities.

It is interesting to note the price for paper during the fourteenth century,

which is given at 12 deniers the quire, with inferior paper at 10 deniers. The trade having greatly increased at the beginning of the fifteenth century, competition became greater at Laon, and prices had a downward tendency. The manufacture and sale was interrupted at times by the wars. The value of the quire rose to 14 deniers, fell to eight in 1414, to rise again in 1420. It fetched 14 deniers again in 1461, and descended finally to 8 deniers in 1500. A great deal of the paper appears to have been sold by pedlars at the fairs. The Flemish makers brought in their papers and cloths and bartered them for wine. The presence of Provencals and Italians at the fairs, and the settling of Lombards in the important towns of Champagne stimulated the activity of the northern regions of France and were the cause of the establishment of paperworks. At first the foreign papers were most in favor, but their ready sale was checked by the levying of a heavy import duty, which encouraged and increased home production.

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COST OF PAPER MAKING IN CANADA AND UNITED STATES.

Arthur C. Hastings, president of the American Paper and Pulp Association, writes as follows in reply to the statements (see last issue) made by J. R. Booth regarding the relative cost of making paper in Canada and the United States:—

No one acquainted with Mr. Booth, least of all myself, would question figures submitted by him; but anyone conversant with the details of the industry would have criticized as incorrect the statement of the cost of paper making at Mr. Booth's mill in its juxtaposition to the statements of his cost of making ground wood and sulphite, without any information being given as to Mr. Booth's purchase at high cost of both sulphite and ground wood; it was impossible to deduce from the statements that the cost of paper making covered considerably higher costs of the raw materials than those given.

Mr. Booth is hardly fair in his assertion that "many of the American paper makers have instituted a campaign of misrepresentation." This is not the case. The American paper makers, being fully aware of the handicap under which they work in competition with Canadian mills, are calling attention to this handicap. If they took the figures given by the chairman of the paper committee of the American Newspaper Publishers' Association, they would credit Mr. Booth with making paper in his modern, up-to-date plant at a cost of not more than \$23 per ton, since Mr. Norris (vide his speech to the Canadian publishers) opens up to the publishers the bright vista of paper selling at \$28 to \$35 per ton, and it is assumed that even Mr. Norris would not withhold from the manufacturer the right to some fair amount of profit.

Mr. Booth is well-known as a very successful business man, of excellent judgment, who would not venture in a losing operation. We must believe, therefore,

he is not running his paper mill at a loss. We have evidence (see page 1157 of the Mann report) that he sold to the International Paper Company on February 18th, 1907, 5,000 tons of paper at a price of \$33 at his mill. We have further evidence (see page 1159 of the Mann report) that he made a contract on November 16th, 1907 (a time at which there was a great scarcity of paper), at a price of \$38 at his mill, and during that year and part of the following Mr. Booth quoted and sold paper in the United States, presumably at a good profit to himself, at a net of \$1.90 at his mill. In the year 1908 Mr. Booth sold paper in the London market at a price which could not net him over \$35 at his mill, unless he enjoys better freight rates than anyone else to that market. We likewise know that in the fall of that year Mr. Booth sold paper to Mr. Norris at a price of \$35 f.o.b. Ottawa.

No one doubts that Mr. Booth purchased wood pulp at prices as high as \$24. But this was under most abnormal conditions. The water at that time was lower in the Ottawa River than it had been for thirty years, and there was a famine of wood pulp all over Canada and the United States. If such conditions are to be compared with the cost of paper making in the United States, I could point out to Mr. Booth numerous instances of mills in this country which paid over \$30 per ton for their wood pulp, a good part thereof imported from Scandinavia. At such rates for raw material the cost of paper making at such mills (materials and conversion) rose to \$44, or \$10 above the high cost reported by Mr. Booth. Such conditions, however, cannot be considered in Mr. Booth's case as a basis of comparison with the normal costs reported by the United States mills.

Mr. Booth states that his wood in 1908 cost him \$8. This price is not disclosed by his cost of material in the making of wood pulp (Mann report, page 3360). The material is given as \$7.26, which, taking a proportion of 1,800 pounds of

ground wood to the cord of wood (a fair average), would indicate a wood cost of \$6.53 per rough cord. Thus abnormal conditions must again have prevailed to cause later a cost of \$8 for rough wood.

Taking this same cost of \$6.53 for rough wood as applied to the sulphite on a proportion of 1,100 pounds per cord, the cost of the sulphite would be reduced to \$26.57 as against \$29.86.

Whereupon, taking Mr. Booth's own formula of 76½ per cent. of ground wood and 30.2 per cent. of sulphite and adding all his other costs in a ton of paper, minus such as do not figure in the United States mill costs, we would reach a cost of material and conversion in the making of a ton of paper of \$27.15.

In further denial of the assertion that "American paper manufacturers have instituted a campaign of misrepresentation," I desire to state that while we have no definite data as to the cost of paper making at other mills in Canada, it is no secret that rough wood is selling at Sturgeon Falls at \$5.50; at Three Rivers at \$6.25; that the Laurentide's cost of paper making does not exceed \$28 per ton; that within less than two months paper has been offered from the Belgo-Canadian mill at a price netting \$33.40 at the mill; that the Laurentide Paper Company has offered within the last month several thousand tons of paper at \$35.50 per ton f.o.b. mill; that the latter mill declared in the year 1906 on an average net return not exceeding \$37, 6 per cent. on its preferred stock and 7 per cent. on its common stock, although its capitalization amounts to more than the \$20,000 per ton of paper mentioned by Mr. Booth as a low basis of valuation.

Our sole aim is to show, as we know we can show, that the cost of making paper in Canada is lower than in the United States, considerably lower. Paper making is no secret. The cost of conversion, as to all items but labor, is about equal in all modern mills; no one can claim much advantage. The whole difference resolves itself into the cost of

raw material and labor, in which the very fact that we import one-third of our wood from Canada at a cost of freight equivalent to \$3.50 to \$4 per cord proves that the Canadian mills have the advantage over us by at least that difference. We are fighting for the retention of our industry in this country; hence call attention to our disadvantage in our demand for the maintenance of the duty; our efforts to achieve this do not contemplate injury to the interests of the Canadian mills, nor can they detract from the esteem and friendliness which we entertain for frank, though competing, fellow manufacturers.

To the above, Mr. Booth replied, in part, as follows:—

With regard to Mr. Hastings' statement, that I sold 5,000 tons to the International Paper Company in February, 1907, at \$33 at my mill, Mr. Hastings is probably aware that Americans, when building paper industries, contract for all or a large percentage of their product some months before the industry is ready for operation. I did not. I felt that I could afford to take my chances, and did. Mr. Hastings will recollect (if he does not the International will) the deplorable condition of the export markets in the latter part of 1906 and the early months of 1907. I started operations in December, 1906; but until I had satisfied myself that one machine and then another would make paper did not book an order. When satisfied that I could make paper I instructed my sales department to book business. I looked to your market and picked up several hundred tons at \$33 at my mill. About this time the International Paper Company, having been in negotiation with my English representative, came along. Their Messrs. Waller, Chable and Whitcomb overlooked my plant, pointed out that I was a new beginner, represented the export markets as most exacting, stated that my ability to make paper must be established, that publishers would hesitate to contract with a new mill. As a new beginner I contracted with them for 5,000 tons, as

I felt I could afford to take chances of losing money at \$33, and wished to run my mill, fully appreciating it would cost me a lot of money to let one or more machines stand idle until the market improved.

I did not sell paper in the London market in 1908 at a price that would not net over \$35 at my mill. Mr. Hastings has again been misinformed.

I sold Mr. Norris 100 tons of paper last fall at \$35 per ton f.o.b. Ottawa. I took this means of obtaining certain information I wished to acquire, and obtained it thereby.

Mr. Hastings draws comparisons between my costs and those of certain American mills under the abnormal conditions that existed in the fall of 1908, but he does not disturb the comparison of the costs of the International Paper Company and those of my mill under normal conditions, outside of his attempt to discredit my statement that my wood cost me \$8 per rough cord in 1908.

I enclose herewith a statement to confirm the accuracy of the cost of my wood as disclosed by statements *vide* page 3,360 of report No. 42.

I desire to state emphatically that I did not purchase a stick of wood in 1908, notwithstanding Mr. Hastings' assertion that "abnormal conditions must again have prevailed to cause later a cost of \$8 per rough cord."

I will further state that only lately I purchased a quantity of wood which will cost me \$8.30 per rough cord f.o.b. cars Ottawa, and if Mr. Hastings doubts my statement, this purchase "can be substantiated by written proof or affidavits from reputable persons."

I am surprised that Mr. Hastings should refer to the price at which wood is selling at Sturgeon Falls, for he is just as well informed of the conditions existing there as I am or the International is.

With regard to the prices at which the Laurentide Paper Company and Belgo Paper Company have lately offered paper, Mr. Hastings knows that there

was just as much justification for such offers, if they occurred, as there was for the recent sales of the St. Regis Paper Company, and many other American manufacturers. The influences that induced the sales on one side of the line induced those on the other; relatively the prices offered or accepted on one side equaled those on the other.

I am convinced that any man with an open mind, after a careful survey of the whole situation, can come to one conclusion only, *viz.*, that in view of the severity of the climatic conditions prevailing during nearly half the year in Canada, the cost of manufacturing paper in a Canadian mill exceeds that of an American mill by at least two or three dollars per ton.

Mr. Hastings has made certain statements with regard to the prices at which Canadian mills have sold and are selling paper. I wonder if he is unaware of his fact, that the International Paper Company and other American manufacturers from 1900 to the present day have successfully competed against Canadian, English, Swedish, Norwegian, German and Austrian mills in the markets of Great Britain, Holland, Australia, New Zealand and South America. Does he not know that an American manufacturer has in competition with the aforesaid mills renewed contracts in one or more of the aforesaid countries within twelve months? Does he not know that an American manufacturer has shipped as much as 45,000 tons annually into these markets? Just consider it, this quantity approximately equals the output of the Laurentide Paper Company, the largest mill in Canada.

I do not care to continue corresponding with Mr. Hastings at any length. I have not had the pleasure of his personal acquaintance. I believe him to be a gentleman who wishes to be fair, but I fear he does not fully understand the conditions under which the paper makers have to work in Canada—what they have to contend with. When he refers to prices of paper in Canada it does not always in-

dicating the cost price of paper at the price it may be bought for.

When I got ready to start up my paper mill of 100 tons per diem I found myself with a year's supply of wood on hand, and not a customer. Of course, I had to get customers at any price, as any new beginner would, and nobody knows that better than Mr. Hastings.

I made ground wood for four years before I went into the paper industry; at the end of the four years I became satisfied that there was no money in making ground wood pulp. I was led to believe there was money in making paper. I have given the paper a fair trial, and am forced to the conclusion that when I took up the paper making I had more money than brains, but I feel it is my first great mistake in life, and shall now bend my energies to one of two things, viz.: free paper for free wood or the prohibition of pulp-wood.

Mr. Hastings says that they get one-third of their supply of pulp-wood from Canada. If that privilege is not worth a free market for what little paper there is made in Canada, less the amount exported, then let the American mills keep out of Canada for pulp-wood.

Statement to confirm the accuracy of the cost of my wood vide statement of cost in report 42, page 3,360.

As my wood is driven upward of three hundred miles and takes two years or more to reach my mill, I find there is a loss of 12 per cent. for sinkage, etc.

The action of the water practically removes all the bark from the wood. My lumber department charges the paper department with the actual cost of the wood plus 12 per cent. for sinkage, and 8 per cent. for loss in measurement as between the woods scale and mill measurement caused by the loss of the bark.

After careful tests by weighing the wood in the rough condition, that is, without the bark, and when prepared, I find the shrinkage to be 11 1-9 per cent. This is also practically borne out when

the wood is measured before and after barking.

One cord of my rough wood would, therefore, shrink 11 1-9 per cent. when converted to one prepared cord.

One prepared cord of my wood will make 2,350 pounds of ground wood, or 8-9 of 2,350 pounds of ground wood equals 2,089 pounds.

To produce 2,000 pounds of stock therefore requires .957 of a rough cord, which at \$8 is \$7.66.

I should say in explanation that my wood in January, 1908, was river wood, and cost me \$6.75 per rough cord, but as I had only started operations in 1907, I was unable to actually arrive at the loss for sinkage, etc., until my wood piles were cleaned up in January, 1908; in fact, I did not place any sinkage charge or loss in measurement against my wood until I had obtained the information in the winter of 1908.

Twenty-three hundred cords of green wood with the bark on were used in February, March and April, 1908. This wood was received by rail from my Mada-waska limit and cost me \$6.75 per rough cord in sixteen-foot lengths. It is not practicable, owing to the character of that limit, to cut more than 2,000 to 3,000 cords of pulp-wood on it per year. The severity of the winter of 1908 rendered the full operation of my ground wood mill impracticable. I had to buy pulp in the months of February, March and April, vide the statement that accompanied my letter of March 17th.

Subjoined you will find the confirmation of the charge for ground wood in the months of February, March and April, as disclosed by my statement, vide Report 42, page 3,360.

One cord of this rough wood shrunk 20 per cent. in converting it to one prepared cord. One prepared cord will make 2,350 pounds of ground wood. Eighty-one hundredths or four-fifths of 2,350 pounds of ground wood is 1,880 pounds. To produce 2,000 pounds of stock therefore requires 1.06 cords of rough wood, which at \$6.75 per rough

cord is \$7.15 per ton of pulp, as disclosed by my statement.

From May I used river wood at a cost of \$8 per rough cord in saw-log lengths, in the water at my sawmill at Ottawa.



PEAT AS A PAPER-MAKING MATERIAL.

J. S. Remington, Douglas Bowack and Bedford Dixon relate in "World's Paper Trade Journal" the result of some experiments in manufacturing paper from peat.

Among the numerous problems lately set down for solution by the Society of Cellstuff and Paper Chemists in Germany is the following: "Within what limit can turf claim value as a raw material for paper?"

One of us being in possession of an extensive peat moss in North Lancashire, from which peat of the very best quality is obtainable, it was thought desirable to carry out some experiments with a view to providing an answer to the question brought forward by the Society of German Paper Chemists.

For some years past the preparation of peat fibre for the manufacture of paper is a matter which has received much attention, more especially on the Continent. Many attempts have been made to produce paper from the upper layers of peat deposits, the material used being the layer lying between the living vegetation, which usually covers the surface of peat mosses, and the true black turf, which is used as fuel. The fibrous portion is removed, and, according to several authorities, has been used in the manufacture of paper. It is generally admitted that it can be utilized when mixed with wool or cotton in the production of coarse fabrics, such as horse cloths, army blankets, carpets, mats, etc., whilst its supposed antiseptic and absorbent properties have led to its application in surgical dressing and as a packing material.

As far as we can gather, however, peat fibre does not appear to be made in

Great Britain at present. Litter and similar materials seem to be the only products, other than fuel, made from peat in this country.

The present work on the subject, which has been done solely for the purpose of investigating the true worth of peat fibre as a paper-making material on a commercial scale, gives rise to considerable doubts as to whether it possesses any special value when compared with the products obtained from existing sources of supply.

Experimental Work.

A supply of suitable (air-dried) peat obtained from the adjacent deposit was found on a preliminary examination to have the following mean composition:—	
Hydroscopic moisture	24.45
Matter removed by mechanical means and further treatment by boiling with 10 per cent. soda washing, etc.....	57.84
Residual fibrous material, still impure and highly lignaceous.	16.80
Ash	0.91
	<hr/>
	100.0

On a larger scale, working with a digester containing about two pounds of dry peat, from seven to ten hours at four atmospheres pressure, it was found necessary, in order to produce a material sufficiently free from dirt and organic matter, to use a considerable amount of soda, but the product resulting from this treatment was only suitable as a furnish for quite inferior kinds of wrapping paper.

The fibre was still dark in color, the yield very small and altogether inadequate in comparison to the cost of materials required for its preparation. About 10 per cent. of chloride of lime was employed to bleach the stuff, which had the effect of improving the color of the pulp to a medium brown, though it still remained somewhat patchy. Some of this fibre was subjected successively to the action of sulphurous acid and chlorine gas for periods of one to two hours, without any satisfactory improve-

ment taking place. The pulp was finally taken and thoroughly washed and then carefully beaten.

The pulp breaks up very readily, and is thus rendered unsuitable for paper-making, and on an examination of the ultimate fibre under the microscope it was found to contain only about 10 per cent. of a pulp having a definite constitution which to all intents and purposes corresponded to chemical wood, the remainder consisting of thick, irregular masses, very much like specimens of mechanical wood, as seen under similar conditions. The fibre, on the whole, was very short, easily broken, and it possessed no felting power.

Attempts were made to produce a pulp by means of direct soaking and boiling in water under pressure for several hours, the product being thoroughly washed and strained. This treatment, however, did not remove the bituminous substances to any extent.

Several small specimens of paper were prepared from this pulp, both sized and mixed with other pulps, and in no case were profitable results obtained.

The following figures have been collated for the purpose of comparing peat fibre with ordinary mechanical wood pulp on a commercial basis:—

It is found that the residual mass, resulting from the extraction of peat by chemical means, is in its finished state much inferior in quality to the pulp, which is obtained by disintegrating wood by mechanical methods alone.

It is noteworthy that there is apparently little ground for assuming that a pulp fit for the purpose of paper-making can be obtained from peat. It may further be mentioned that to enable a successful industry in the manufacture of peat pulp to be carried on it would be necessary that the fibre be produced at a cost of less than £1 17s. 6d. per ton, which is about the lowest cost price of dry mechanical wood pulp, on estimates made at the present time in the Lake of St. John district, Canada. At the modern mills in Norway and Sweden

the cost is somewhat higher, £2 15s. per ton being a nearer average.

Under favorable conditions of working one ton of dried peat would yield about one cwt. of fibrous matter, which in cost of chemicals alone would work out at at least 40s. To this must be added the cost of the peat, labor and working expenses. In this country 20 to 30 per cent. of chemical wood has to be added to the mechanical pulp in order to hold it together on a fast-running machine, and it is certain that peat pulp would require the addition of a much larger quantity to effect the same purpose.

In view of the progress which has been made in the manufacture of mechanical wood pulp, it is not unreasonable, in spite of reports to the contrary, which from time to time appear in the press, to affirm that the possibility of the successful utilization of peat fibre as a substitute, or as a paper-making material, is somewhat remote.



WASHING FELTS.

The felt coverings of the rollers require frequent cleaning. The first thing to be done is to free the wool from mineral substances which have been used in loading the paper, such as China clay, talc, etc., and also mineral pigments, some of the excess of which gets to the dry end, although most of it is lost on the wires. When the deposit of these mineral bodies on the felt has reached a certain pitch, the couching works unsatisfactorily. The fibres are laid at various angles to the width of the web, and in making thick papers, such as cardboards, they are partially crushed. The pores of the felt sheathing, and the woolen cloth which has been raised to give it the necessary degree of elasticity, are full of earthy bodies, to such an extent that the elastic pressure which the upper roller ought to exert is nullified.

It follows from the above considerations that the washing process must remove all the loading substances with-

out injuring the surface of the felt; i.e., without removing any of the wool. The best method is to brush with a very hot soap lye, made from a neutral soap and containing a little ammonia. If such a lye is employed no "chemicals" are required. The brushing is done with a vegetable bristle brush, which will raise the fibre, but which is supple enough not to injure it. Metal bristles must on no account be used, however flexible they may be. They spoil the tissue entirely. The brushing is done both along and across the warp. The rinsing is done by spraying water under pressure over the felt. Both the brushing and the rinsing should be done by hand, and never by means of mechanical apparatus. The rinse water issues from a nozzle, and is connected with the supply by a flexible pipe, so that the operator can direct the jet as he sees fit.

Felts charged with rosin require a word apart. The simple process here given cleans them, but certainly takes a long time. Nevertheless, it is inadvisable to use any detergents other than plain soap and water and ammonia. It will be found that any saving of time which is secured by using soda, for example, is discounted over and over again by the rapid wear of the felts cleaned in any other manner than that described. A very trifling amount of concentrated ammonia, say, a teaspoonful per quart of soap lye, has a wonderful influence on the efficiency of the cleaning. After washing, the felts are rinsed and dried slowly at a moderate heat, in the open air if possible. It is of great importance not to hurry the drying. Quick drying, especially at high temperatures, causes the surfaces to mat together. In any case a brushing or the same kind as that already described must be the final operation after drying.—Paper Making.



CANADIAN PULP AND PAPER EXPORTS.

In the House of Commons on March 22nd the Minister of Customs gave, in

reply to a question put by Dr. Beland, of Beauce, who was one of the Canadian Commissioners to the recent conference at Washington on the conservation of natural resources, some valuable figures in regard to the pulp and paper exports of Canada. The doctor wanted to know the production in Canada of pulp and paper last year, but the Minister was unable to give that, as it was a matter which lay within the control of the Provincial Governments. He gave the following figures as to pulp exports:—During the last fiscal year the quantity of pulp exported was: To the United States, wood pulp chemically prepared, 769,514 cwt., and mechanically ground, 3,933,885 cwt.; to Great Britain chemically prepared 13,660 cwt., and mechanically ground, 973,598 cwt.

The export of paper during the same period was: To the United States: wall paper, rolls, 19,974, valued at \$6,440; felt paper, rolls, 109,863 valued at \$101,835; wrapping paper, 594,695 pounds, valued at \$24,265; printing paper valued at \$791,533; paper of other kinds valued at \$34,673. To Great Britain: wall paper, 512 rolls valued at \$159; felt paper, 5,060 rolls, valued at \$21,896; printing paper to a value of \$922,278; and other paper to a value of \$354,887.

During the same period 901,861 cords of pulp-wood were exported to the United States.



THE AMBURSEN DAM.

The Ambursen Hydraulic Construction Co., of Canada, Limited, with offices at 519 Coristine Building, Montreal, inform us that the War Department of the United States Government at Washington have given their official approval of an Ambursen dam, 60 feet high in the rollway, 80 feet high in the bulkheads and of a total length of about 1,000 feet. This dam is to be installed on the Savannah River, and is to support a flood of 300,000 second feet, such as occurred last summer (as great as the total flow over Niagara Falls), which will mean a depth on the rollway of about 16 feet. The United States Gov-

ernment has also approved of the Ambursen dam for the United States Reclamation Service, and built one situated on the Shoshone River, about eight miles below Cody, Wyo. The foundations are on gravel and shale, and the dam proper is 400 feet long by about 50 feet high, supported by a floor two feet thick.



WHY INDEED?

Industrial Canada comments thus on a diagram in Scientific American, giving a pictorial comparison of the paper industries in leading papermaking countries:

"For all our vaunted wealth of pulp forests we make a poor showing in the amount of paper we manufacture in this country. The cartoon which appears herewith, reproduced from the Scientific American, gives a pictorial comparison of the paper industries in the leading papermaking countries of the world. Among these Canada is not considered worthy of mention. At the same time we find the United States waxing fat and prosperous at our expense. More than any of the six countries mentioned, we are rich in the natural product which is the basis of a papermaking industry. From our forests goes a continuous procession of trees to feed the insatiable mouths of the United States paper mills. Yet while it has been shown that the country is peculiarly adapted to this line of manufacture, so far comparatively little advantage has been taken of that fact; we continue to be satisfied with the wages of the hewers of wood while the high prizes go to others. The value of the product of this industry in the United States for 1905 was \$188,715,189. How much of that was made possible by the importations of pulp-wood from Canada the records do not show. It is, however, a sad commentary on our business acumen that no action has yet been taken to reserve to Canada the profits arising from this source. What our forests mean to United States manufac-

turers is shown by the fact that practically every company of importance, whether in the paper or lumber industry, has large holdings in this country. Government action to restrict the exportation of pulp-wood is urgently needed.



FILTER PAPERS.

The manufacture of filter papers is a special branch of the paper-making industry, and many difficulties have to be encountered in preparing an article which will correspond to the severe demands nowadays made upon a filter. It must filter fast, and yet retain very finely-divided precipitates and these are characters which are to some extent contradictory.

The pulp for a filter paper is made from bleached cotton with a certain proportion of bleached linen, and is, of course, unsized, like that intended for blotting paper. To ensure rapid filtration the paper must be made with as loose a texture as is consistent with the retention of the solid matter thrown upon the filter, and it is impossible to give any rules for the treatment of the pulp in the machine. Long experience alone will enable any one to regulate the details as occasion arises, not only in the hollander, but from the first step of the manufacture to the last.

Unless the pulp is exactly right, and is appropriately handled, the paper cannot be satisfactory. No filling is permissible, of course. It is usual to purify filters of the best kind from mineral matter by means of acids, such as hydrochloric and hydrofluoric; but that hardly comes within our scope, as the filters are soaked in the acid, rinsed, and dried in the finished state, and usually after they have been cut into the well-known circular form.—Zentralblatt.



—The Paper Makers' Chemical Company, Easton, Pa., have an individual method of sending out their yearly calendar in the form of quarterly instalments. We are now favored with the third instalment.

ATTEMPT TO BRIBE LAURETIDE PAPER COMPANY EMPLOYEES.

An extraordinary story is told of an attempt, alleged to be by American paper manufacturers, to extort information as to the cost of making paper in Canada, for use before the United States Ways and Means Committee.

It seems that on April 19th, A. H. Purcell, of Buffalo, and J. F. Fitzgerald, of Fort Edward, came to Grand Mere, the former saying he was a representative of the New York Journal, sent here by Mr. Carvalho. He said that Mr. Carvalho and Mr. W. A. Whitcomb, Manager of the International Paper Company, had been in an argument regarding the relative costs of producing news print in Canada and the United States, and had requested Mr. Purcell to come to Grand Mere and ask the company if there was any secret about the costs, and if they would have any objection to telling him frankly what the average actual costs were over a period of years.

Mr. Purcell was informed that Mr. Chahoon, the general manager of the company, was out of town and that in his absence Mr. Sabbaton and Mr. Woodcock did not feel that they were at liberty to give him any information upon the subject; that the matter would be submitted to Mr. Chahoon, and that Mr. Purcell would be given any information which Mr. Chahoon was willing he should have, and that in case Mr. Chahoon was not willing that the information should be given, he would be so informed. The conversation then reverted to the question of mill costs in Canada and the United States, in general, and lasted for about an hour, no definite figures being given.

On April 23rd, Mr. Woodcock, the superintendent, was called up on the telephone by L. Gyle Willson, Assistant Superintendent of the International Paper Mills at Glen Falls. Mr. Willson asked Mr. Woodcock if he could make an appointment with him in Montreal for a party who wished to see him on very important and confidential business.

On April 23rd, P. L. Pottle, formerly of the Canada Paper Company, of Windsor Mills, Quebec, who has recently been given a position by the International Paper Company as superintendent of their mills at Glen Falls, called at the office of the Glen Falls Trust Company, at Glen Falls, and had a talk with A. Eugene Mason, the cashier, and handed Mr. Mason a letter. A copy of this letter was made by Mr. Mason, and follows:—

Copy of letter written on International Paper Company letter head.

"P. L. Pottle, superintendent,
International Paper Company,
Glen Falls, New York.

Dear Sir,—It has been brought to the writer's attention through a source which we consider absolutely reliable, that Mr. O. Mason, employed by the Laurentide Pulp & Paper Company, as foreman in their mill, is to be dropped from their employ within a month and to be replaced by someone else.

There is a chance for a young man of Mr. Mason's ability to obtain employment with this company provided we can employ him at once. Will you therefore not see Mr. Mason's brother, who is at present at Glen Falls, and try and see if he cannot arrange with Mr. Mason to meet a representative of this company (namely Mr. Rohr), who is to be in Montreal Saturday morning and talk matters over with him. The writer thinks it will be to Mr. Mason's future interest to talk with Mr. Rohr.

Very truly yours,

Allen Curtis, Acting Manager."

Mr. Mason's brother, J. Orley Mason, who is superintendent of the Laurentide Paper Company's sulphite mill at Grand Mere, was then in the Royal Victoria Hospital in Montreal. Mr. Mason called up his brother and read him this letter and told him the substance of the conversation he had had with Pottle. Mr. Orley Mason left the hospital on Saturday, and that night went to the hotel where he had been told by his brother that Mr. Rohr would be. At the Wind-

sor Hotel Mr. Mason met Mr. Woodcock. Mr. Mason showed Mr. Woodcock the copy of the letter which he had received in the meantime and told him he was then looking for Mr. Rohr. Mr. Woodcock then told Mr. Mason why he was there. Mr. Woodcock received a telephone message while at the Windsor, and a few minutes later a man, who said his name was Thompson, came into the hotel and told him that the party who wished to see him was at the Queen's Hotel and asked Mr. Woodcock to go there to see him.

Mr. Thompson took Mr. Woodcock to a room in the Queen's Hotel, where Mr. Woodcock found Mr. A. H. Purcell. Mr. Woodcock was very much surprised to see Mr. Purcell and asked Mr. Purcell what he was doing there. He stated that he was very anxious to see Mr. Woodcock alone, that he was unable to do so while at the mills because of the presence of Mr. Sabbaton, and did not wish to come there again for fear that he would run across some of the other men he had met there, and that was also his reason for not wishing to come to the Windsor, and that he was the person that Willson made the appointment for. Mr. Purcell then stated that a director and official of the Laurentide Paper Company had been employing a detective at Grand Mere to watch Mr. Woodcock, and that he had made a very unfavorable report on Mr. Woodcock's efficiency and work to the director, and that Mr. Woodcock was in great danger of losing his position. Mr. Woodcock then asked him what concern that was of his, and who he was anyway. Mr. Purcell then stated that he was a representative really of the United States Government, and that he was there to get the costs of the Laurentide Paper Company, and that he must get them from him. Mr. Purcell then said: "You know Mr. Whitcomb, General Manager of the International Paper Company, he is a good friend of yours; you will probably lose your job with the Laurentide, I want to tell you that either Mr. Whitcomb or Mr. Schenck, President of the

Great Northern Paper Company, will give you a good position if we get these figures." Mr. Woodcock then stated to him that if he was a representative of the United States Government, he was taking an extremely peculiar way to get these figures.

Mr. Purcell then asked Mr. Woodcock if he would go to Washington and testify as to the costs of the Laurentide Paper Company, and Mr. Woodcock told him he would not do it under any circumstances.

Mr. Woodcock then returned to the Windsor Hotel where he saw Mr. Mason, and told him all about Purcell and the talk he had had with him, and told him that he thought he was an International spy, and if he was the same man who was looking for him, to say nothing to him.

Mr. Woodcock then called up Mr. Chahoon, the general manager, and told him all that had occurred. Upon Mr. Chahoon's recommendation, he then asked Mr. Purcell over the telephone to come to Grand Mere on Monday and see Mr. Chahoon about the matter of the costs.

Sunday night, April 25th, Mr. Purcell told Mr. Mason that he was the representative of Mr. Rohr, and that he was trying to get the costs of the Laurentide Paper Company, or some representative Canadian mill, but said what he particularly wished to see Mr. Mason about, was that he represented some friends of his in the United States, and wished to see him about his position.

Mr. Mason asked that if he had the costs of making paper, as claimed, what was he trying to get them from him for, and Mr. Purcell said: "What we want is for you to go to Washington and back up these figures." He said: "How does this proposition strike you?" Mr. Mason said: "It has no interest at all to me." He said that he thought it wouldn't probably be, but he said, "You mark my words, your position is in jeopardy, and if you want a position at any time, you can reach me through your friends in Glen Falls."

NEW WOOD PULP PROCESS.

George B. Frankforter, dean of the college of chemistry at Minnesota University, makes public the details of a discovery by which he declares, through the utilization of waste wood and sawdust, the United States will produce one hundred times as much pulp-wood as was believed possible.

"It means," he says, "that every cord of fir lumber will yield \$10 profit on by-products alone, and that the greater part of the 60 per cent. of a tree now wasted will be turned into dollars and cents. He also predicts, huge plants and new industries.

C. A. Smith of the C. A. Smith Timber Company, is at present almost the sole sharer with Dr. Frankforter of the process. So convinced is he of the commercial value of the discovery that an experimental plant will be constructed this summer in the West, to be followed by a plant.

The processes are already patented, two final patents having just been granted. After the experimental plant is in operation, it is probable that a large company will be formed.

Dr. Frankforter has experimented on these processes for twelve years. He has spent of his own and other people's money—thousands of dollars. The perfected process consists of taking small pieces of waste wood or saw-dust, laying them on a steel incline over a furnace and subjecting them to a chemical process of distillation.

Carbon disulphide or gasoline is poured over the sawdust, dissolving the turpentine and resin which pass off as gases into a coil of pipes leading to a tank. The process is similar to the distillation of sugar. The wood pulp remains, free from pitch, and eminently suitable for the manufacture of paper. The existing

method of distillation left the pulp in the form of charcoal.

As concrete example of the value of the new process, Dr. Frankforter extracted from one cord of Norway pine worth \$7.50, turpentine worth \$41.60, and wood pulp worth \$39, or a yield of \$80 from \$7.50 of raw material.

If these laboratory tests prove any indication to the commercial value of this invention it will mean an enormous deal to the paper industry. But history's lesson teaches us to be extremely cautious in this regard. Some Canadian paper companies, including, we believe, the Canada Paper Company, have used balsam fir and other firs to a considerable extent, or found that, probably owing to their resinous character, the paper produced is not so good as that from spruce. Further particulars will be awaited with great interest.



—The Montrose Paper Company, of Thorold, Ont., has gone into liquidation at the instance, we understand, of the Riordon Paper Company. George Kappele is named as official referee and Harry Vigeon, Toronto, has been appointed liquidator. The total assets are figured at \$254,158, while the amounts owing to secured creditors total \$145,674, and unsecured \$26,113. The loans by shareholders are \$12,816. There is an apparent surplus of assets over liabilities of \$65,417. A meeting of creditors is to take place on the 4th of June. Meanwhile it is understood that an attempt will be made to sell the property, though there is some dissatisfaction expressed among creditors as to the paucity of information given out. The mill was closed down a few days about the middle of last month for repairs to the machinery.

Sale of Paper and Pulp Mills

Sale by tender of the Paper Mill Property, Woodlands and other property, of the St. Raymond Paper Company, Limited, in liquidation, pursuant to the winding-up order of the Superior Court of the Province of Quebec.

Sealed tenders will be received up to twelve o'clock noon, on the 25th day of June, 1909, by the Liquidator of the above Company, for the purchase of the following property of the Company.

PAPER & PULP MILLS SITUATED AT ST. RAYMOND, P.Q., on the St. Anne River, County of Portneuf, having a capacity of twenty-five tons of paper per day.

The Paper Mill, completed in 1907, is built for the installation of a second machine which would provide for an output of fifty tons of paper per day. In addition there is a Pulp Mill with five Grinders.

MILL SITE & PULP WOOD LANDS CONSIST OF.—Twenty-five thousand two hundred and seventy-seven acres (25,277), of which 19,927 are freehold and 5,350 Government License, estimated to contain upwards of 250,000 cords of pulp-wood with about as much more hard-woods.

THE WATER POWERS, RIVER BED RIGHTS, AND RIVER BANKS, belong to, and are controlled by the Company at St. Raymond. The water-power has a present development of 4,000-H.P., and a much larger possible development.

COTTAGES, etc.—There are two new and very substantially built cottages, used by Directors and Superintendent, a large and well-built boarding-house, and a small tenement, mill office, storehouses with a storage capacity of 600 tons of paper, also stable situated at the Mill. There is also an up-to-date electric plant which not only supplied the Mill with light, but also lights the above named buildings, bridge and Mill yard.

THE SUCCESSFUL TENDERER can purchase the Mill stores, repair supplies and camp supplies amounting to about \$20,000, as per inventory, at a valuation to be agreed upon.

TENDERS will be opened by the Liquidator, Mr. Frank Powell, at his office, Room 131, Board of Trade Building, in the City of Montreal, on the 25th day of June, 1909, at 12 o'clock noon.

The highest, or any tender not necessarily accepted.

TERMS OF SALE.

An accepted cheque for ten thousand dollars (\$10,000) must accompany each tender.

In case of acceptance of any tender 25 per cent. of the purchase price is to be paid by accepted cheque forthwith, of which the \$10,000 shall form part, and the balance within ninety days (90) days thereafter with interest at 6 per cent.

In case of default by purchase after notice the Liquidator may declare the deposit forfeited.

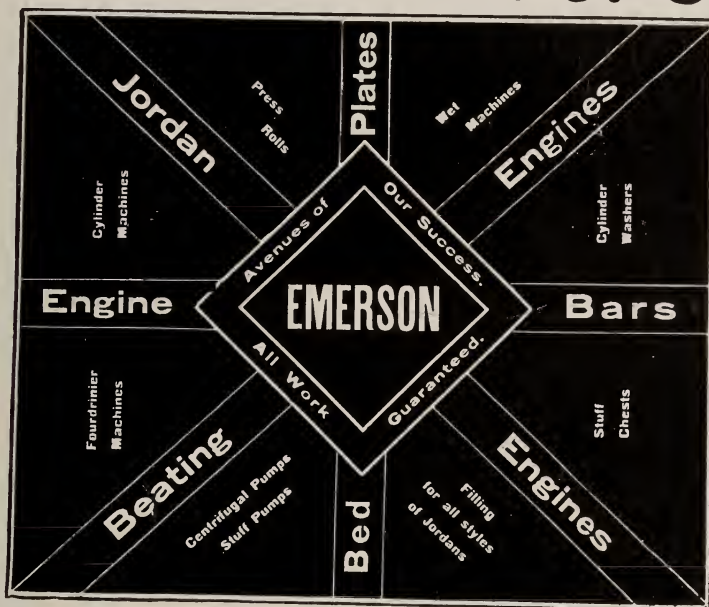
After acceptance the property is to be insured and premiums paid by the purchaser, and the property to be kept in repair by him. Taxes and insurance to be apportioned as at the date of acceptance of tender.

Possession will be given upon payment of the full amount of the purchase money.

The other conditions of sale will be the standing conditions of the Court.

Full particulars of the timber lands, water-powers, mill and other details, can be had upon application to the Liquidator, F. Powell, Room 131, Board of Trade Building, in the City of Montreal, or a descriptive circular will be mailed on application.

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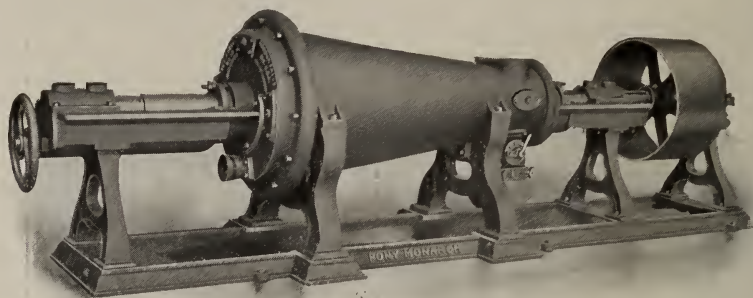
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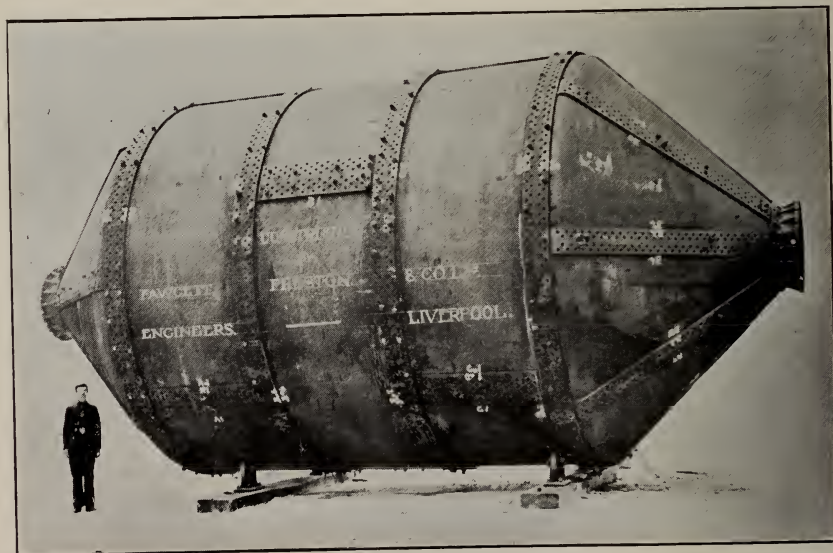
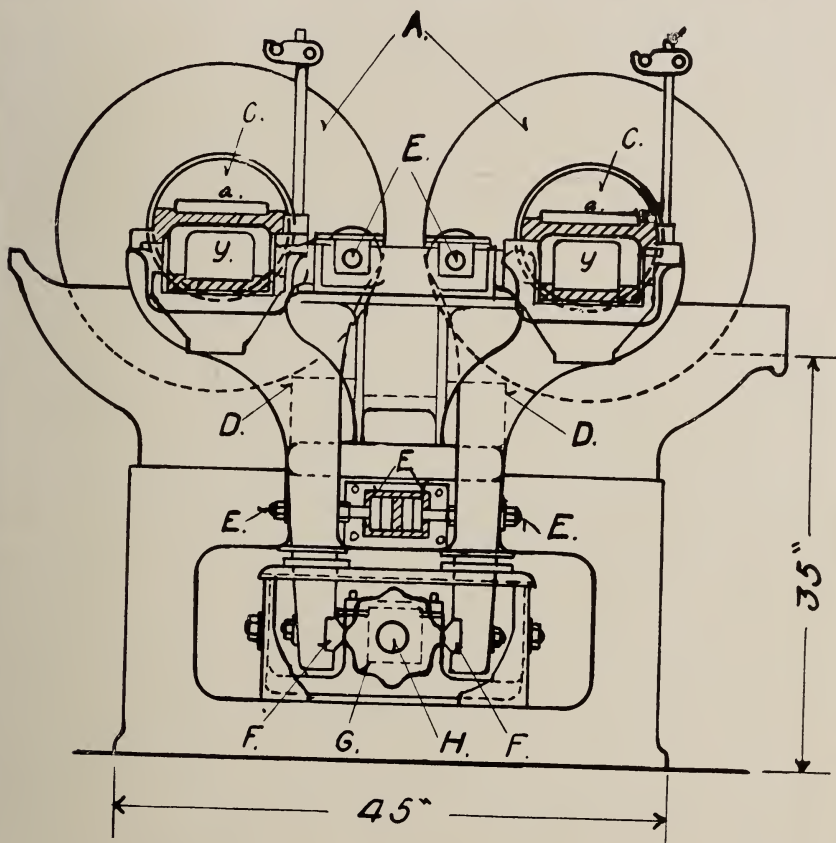


Photo shows Digester 17 ft. 6 in. diam. x 36 ft. 8 in. long supplied to Edward Partington Pulp & Paper Co., St. John, N.B., being the fourth digester supplied by us to this mill. Write for circulars and price.

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THOROLD, - - - - - ONT.

THE MARKETS.

Toronto, May 8th, 1909.

A feeling of optimism pervades trade circles, but at the same time it must be confessed that while there is every sign of a general business revival, the actual activity looked for is slow in coming. This is particularly evident when ever the business depends for its outlet upon the United States, where, no doubt, the uncertainty about the tariff is having considerable effect in depressing trade. Another factor which helps to continue any dulness is the lateness of the season which has kept back seedling both in Ontario and in the West. While this, of course, may eventually prove to have had no adverse effect on the crops it is a factor in preventing the anticipated rush of business from materializing. In paper, no special complaints are heard, though some grades of mixed are selling a little easier. Fibres and manilas and browns also are a little on the dull side. With regard to pulp, groundwood is selling very slowly, in accordance with the conditions in the United States. The usual quotation ranges around \$16 f.o.b. mill, which would represent about \$22 to \$23 delivered at mill across the border. But offers at this figure, or even below have been turned down by buyers, on the score that they could obtain it at a cheaper delivered price. The domestic pulp trade, of course, is as a rule covered by contract and there is a general indisposition to lay in any surplus. As a result some of the mills, aided by good water-power, are piling to a considerable extent. Sulphite is keeping fairly steady at \$36 to \$42 at mill.

British Markets.

Wood Pulps.—If buyers are willing to pay 55s. per ton mechanical pulp c.i.f. United Kingdom, there are plenty of parcels of 50 per cent., moist pine pulp available, but as there are very few openings, this is considered an outside price,

and as the open water shipments will shortly be coming forward, very much lower prices are anticipated, reports World's Paper Trade Review. For chemical pulp the market is quiet at unchanged prices.

Esparto.—There is a fair inquiry for distant contracts, prompted by the comparatively low prices now ruling.

Rags.—Business in home rags is very restricted, and values show no alteration. In foreign rags shippers of all grades report a quiet market. Quotations are without change.

Waste Papers.—There is a good demand for well sorted shavings of good quality; other grades are weaker, large letters being quoted at 4s. 6d., and light browns 3s. 9d. to 4s. 6d.

Chemicals.—The market continues quiet. Quotations: Ammonia alkali, 58 per cent., £4 15s., Liverpool; bleaching powder (soft wood), £4 5s. f.o.r. Lancs.; caustic soda, 76 per cent., £11, Liverpool soda crystals, £2 17s. 6d., Tyne; salt cake, £2 f.o.r. Lancs.; recovered sulphur, £5 5s.



—Canada leads in the per capita consumption of paper, with 62 pounds; Great Britain follows with 55 pounds; Sweden, 53 pounds; Finland, 52 pounds, and the United States, 51 pounds.

—Arthur Koppel Company, Koppel, Pa., offices at Pittsburgh, New York, Chicago, etc., send us a catalogue describing their industrial railways for paper mills, lumber yards, chemical works, etc. Manufacturers are realizing more and more the economy and extra efficiency to be found in a thoroughly equipped transportation system, even in comparatively small plants. In some paper mills it is said that the introduction of these light railways has resulted in a reduction of the cost of handling to the extent of fifty per cent. or more. The company informs us that their complete catalogue (No. 400 B.) will be supplied free of cost to those interested.

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IS THE SAFEST AND BEST MATERIAL FOR

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PANZL LININGS ARE SAFEST AND MOST DURABLE

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All Digesters lined with Panzl's patented composition, now as tight and in as good condition after years of continuous use as they ever were, no leaks and no repairs.

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The composition and the system of constructing of Panzl Linings are patented in all countries where wood pulp is being manufactured by the sulphite process. **The PANZL U.S. Patents** have been adjudicated to be valid in law and wholly independent of all prior patents relating to linings of digesters.

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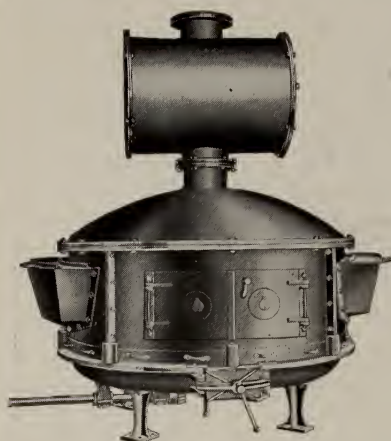


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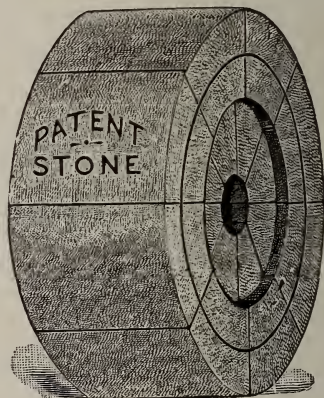
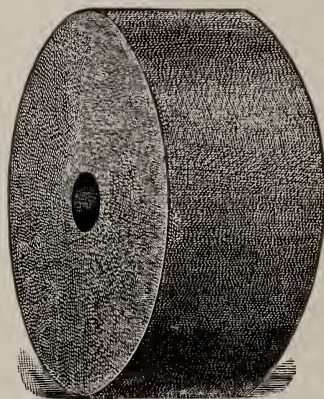
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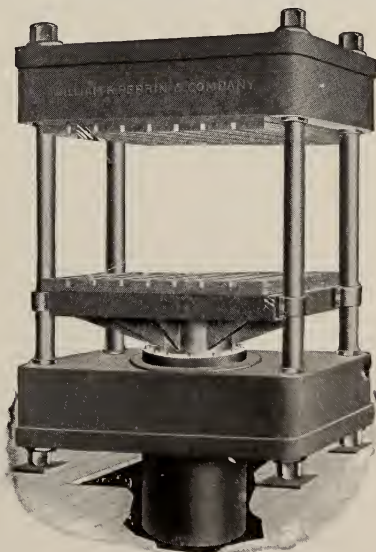
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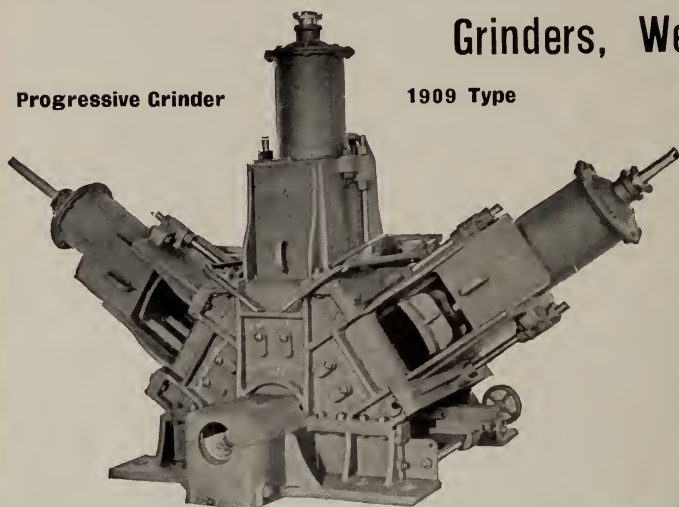
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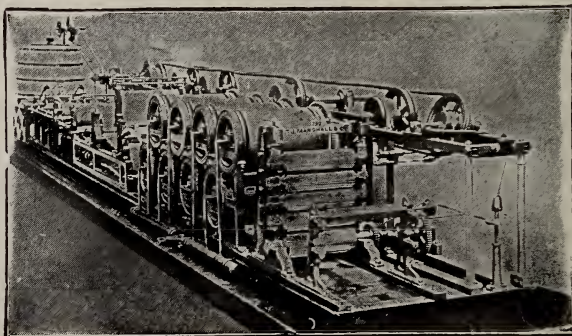
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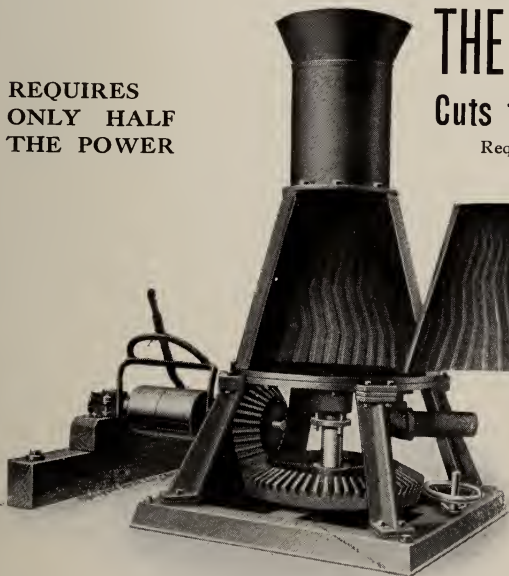
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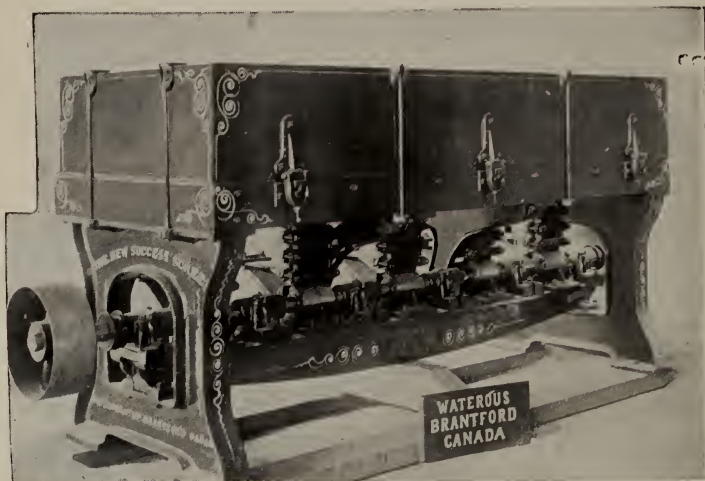
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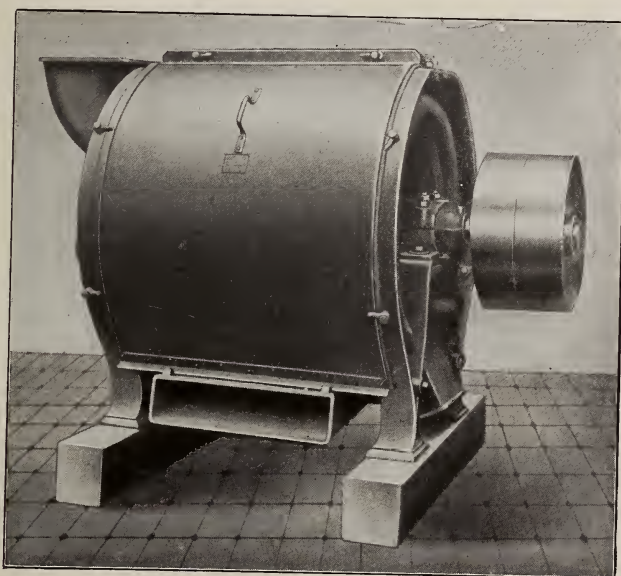
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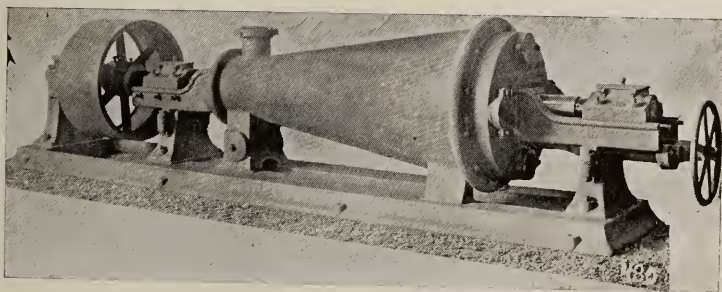
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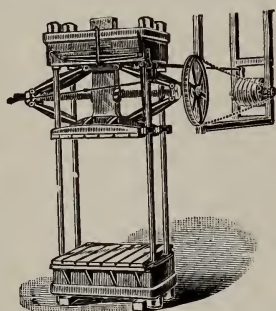
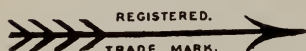
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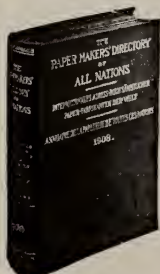
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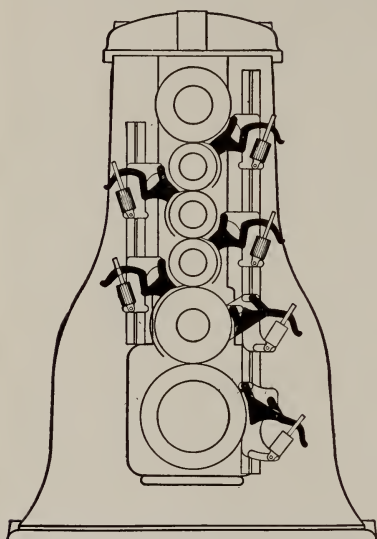
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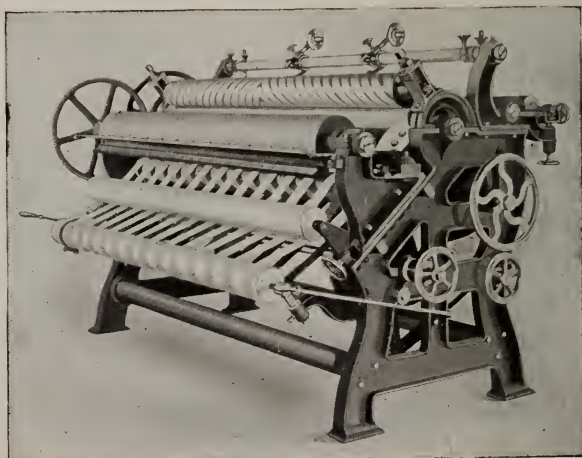


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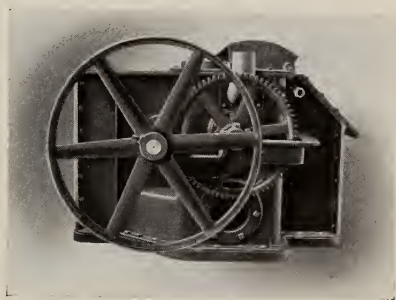
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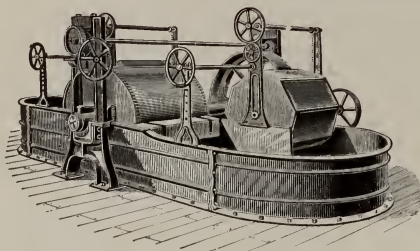
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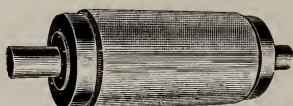
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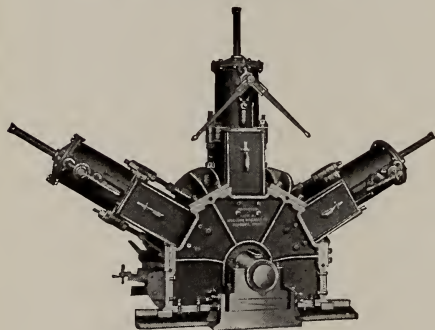
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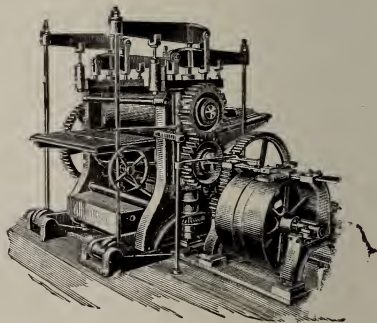
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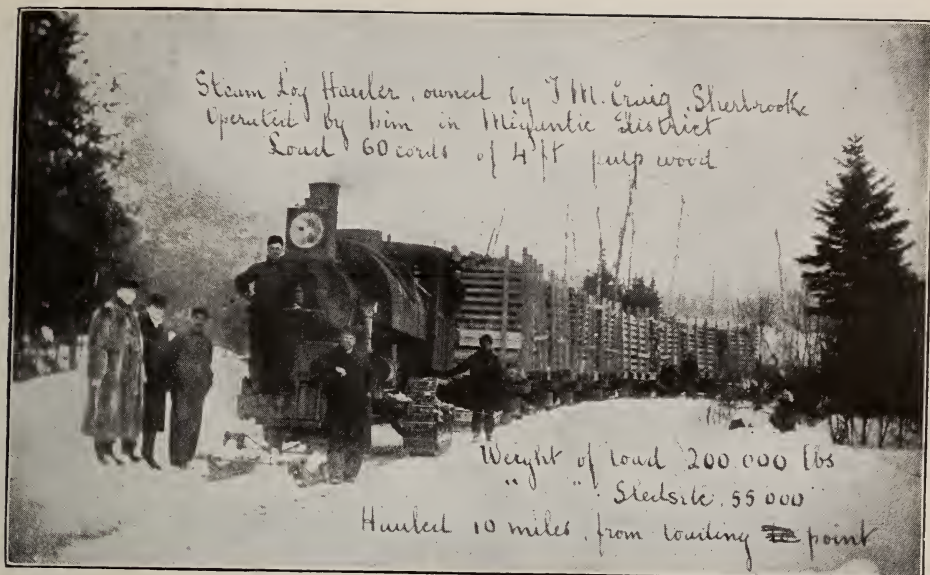
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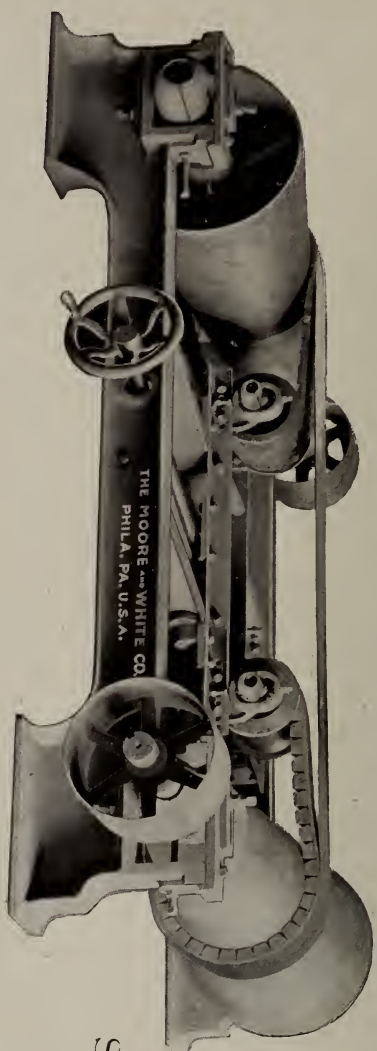
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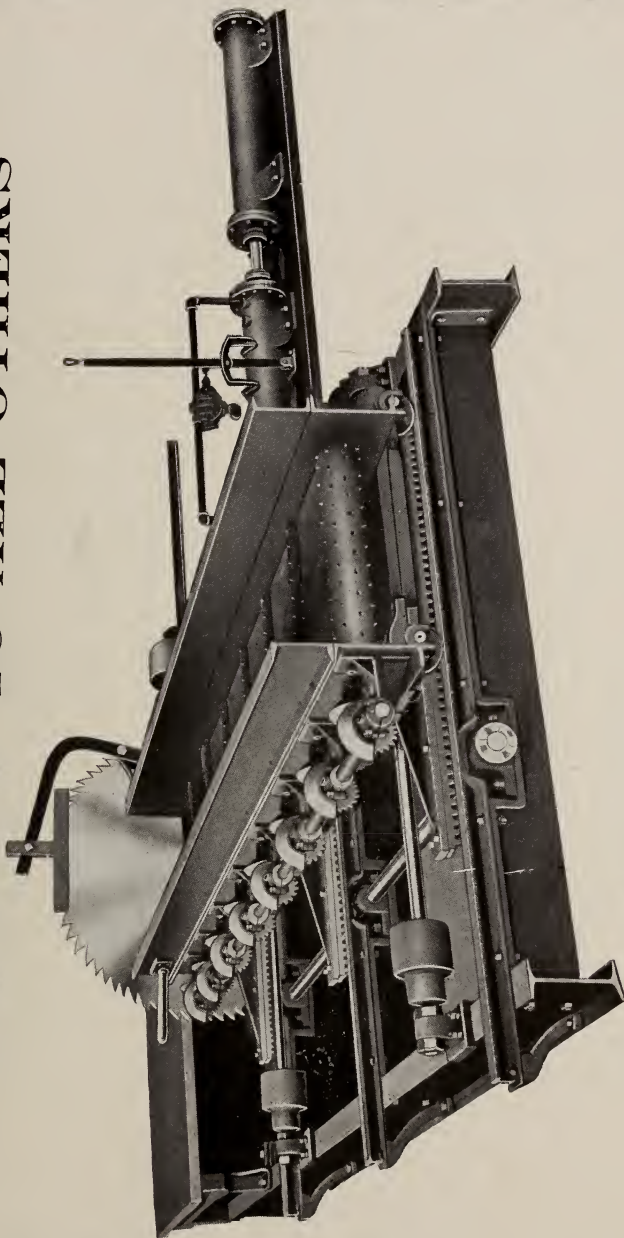
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 6.

TORONTO, JUNE, 1909.

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Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

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RESTRICTION IN QUEBEC

As stated in the references by our Montreal correspondent to the speech of Premier Gouin in that city, highly important legislation is under way in the Province of Quebec for the prohibition of export of pulp-wood from Crown lands. The announcement of this policy does not come before it was needed, but the pulp and paper makers who took part in the recent deputation must be congratulated on the quick response to the cogent arguments they so ably presented to the Ministers a month ago. This step, following so closely to the lines of the policy which has been in force in Ontario for years, will serve to show the United States that we are in

thorough earnest to protect our own interests in the matter of pulp manufacture. The United States Senate seems disposed to tear into pieces the suggestions of the proposed Payne tariff bill, and there is still an absolute lack of certainty as what the new American tariff on pulp and paper products will be. But it is altogether likely that the action of the Quebec Government in raising stumpage fees and in prohibiting the sale of pulpwood except when manufactured in the Province will lead to negotiations emanating from Washington. Whatever the American Government may do, however, whether in the direction of placing pulp-wood on the free list or not, it looks as if the Americans will either have to buy pulp from Canadian mills or set up pulp mills in Quebec. At present New York State mills get 80 per cent. of their supplies of pulp-wood from this side, and the great Crown timber limits on the St. Maurice River, largely in the hands of Americans, are sending logs to pulp mills in the United States, for which no appreciable return comes to this country.

So far, so well. The prohibition of pulp-wood exports from Crown lands in Ontario and Quebec does much to relieve the situation so far as conserving Canada's natural resources are concerned. But it does not relieve the Federal

Government from its national duty along the same line. A high export duty or absolute prohibition by the Dominion Government would prevent shipping wood away, not only from Crown lands, but private lands as well, and would be of that much more complete benefit for the saving of our forests. There is this compensation, however, in obtaining relief thus gradually. The great obstacle to action by the Dominion Government is the opposition of Quebec farmers on the supposed ground that their profits from the cutting of pulpwood would be diminished if shipments out of the country had to cease. The new Quebec policy of stopping exports from Crown lands will tend to actually enhance the price of wood from private lands, as there will be smaller supplies to compete with one another. This, with the chances of new pulp mills being built to meet the new conditions will prove educational to the farmers who believe their market will be cut off, and will show them they have nothing to fear in the end from Dominion prohibition.



ARE PAPERMAKERS TOO WASTEFUL.

John Norris, of the American Publishers' Association, is nothing if not wholesale in his condemnation of those with whom he has a variance of opinion, to wit the American papermakers. Not only does he accuse them of having but very second-rate morality when it comes to business procedure, but he says they have brought down on their heads all the results of their own incompetence and wasteful methods. Now, it must be admitted that the paper manufactur-

ers, not only in the United States, but in Canada might be with advantage more economical in several points than they actually are; but surely they are not so bad as they are painted by this advocate of the other side.

Take for instance his remarks about waste sulphite liquor. Now this question, which nobody will deny is of the very greatest importance to the paper industry, has been investigated by some of the ablest chemists in Europe, with a view to preventing or minimizing the waste, and yet no satisfactory solution of the trouble has been found. It is a little unjust therefore to cauterize the manufacturers of this continent for disgraceful wastefulness on a point in which European makers are equally at sea. It may be pointed out that where the soda process is employed, either in Europe or America, the chemicals in the waste liquor can be and are usually recovered by evaporating and calcination. This is not the case, however, to any extent, with sulphite waste.

Mr. Norris also stated, we understand, that through the wasteful methods and lack of ability of American newspaper makers the loss amounts to \$3,000,000 yearly. Did Mr. Norris pause to find out the whole average annual production of news on this continent and then pause another moment to think what percentage of the whole such a waste would be? And did he then think such an absurd alleged percentage of waste at all possible?

Let us, however, present an unbiased observer's opinion as to how the papermakers of this continent carry on their business. William Dyson, an expert British papermaker and secretary of the Amalgamated Society of

Papermakers, was one of the Mosley delegation who paid a visit some years ago to report upon prevailing manufacturing conditions in the United States. After referring warmly to the great natural resources of this continent for papermaking in the way of wood supplies and water powers, Mr. Dyson went on to say: "There is no doubt that we in Great Britain are lagging behind, the mechanical equipment of the average American mill being superior to the average mill in this country, not only in the shape of labor-saving machinery, but also in the machinery actually necessary for papermaking, the idea being from the time the raw material enters the mill to get as much made into the finished article in the shortest possible time, and everything necessary in the process is regulated and controlled by this desire." And he goes on in detail to prove his point. Does this look like incompetence on the part of the American paper mill?



CANADIAN PAPER TRADE WITH NEW ZEALAND.

Among the travellers through Canada on their way to take part in the Imperial Press Conference in London, was Mr. H. Brett, proprietor of the Star and Weekly Graphic, of Auckland, New Zealand, and one of the largest users of newspaper supplies on that island. In an interview, this gentleman was very frank in his expressions of opinion regarding Canadian manufacturers whom, there is no reason to doubt, the New Zealand Government is genuinely desirous to help through its present preferential tariff arrangements. Among the items of this preference, news paper

is one, there being a duty of 20 per cent. on foreign paper and none at all on paper coming from Great Britain or the Colonies. Formerly, practically all the news paper used in New Zealand came from the United States, but when this heavy preference came into force, all the newspaper proprietors turned to Canada. According to Mr. Brett, however, a good many disappointments were suffered owing largely to defective shipping arrangements and to inattention to the requirements of the buyer. Too often Canadian manufacturers are apt to supply goods such as they deem most suitable to their customers, without giving the latter the "say-so" as to what they really want. Owing to thoughtlessness in packing, the paper, which, in any case, generally has to go a roundabout route, by way of New York or London, arrives in New Zealand in a damaged condition. Mr. Brett was himself obliged a little while ago to drop half his own paper contract and get it from England, which practice he still continues. When shipments are made by way of New York, preference is given in loading a vessel to American shipments, with the result that quite frequently the Canadian goods are left for the next boat, making a long delay. Besides this, cartage charges at that port are very high, which all goes to increase the expense of freight, etc. With the prevailing sentiment in New Zealand in favor of Canada, and with the highest preference of 20 per cent., it should be an easy matter for us to develop a large export trade with that country, if we would only pay more attention to the requirements of their merchants and importers. During the four years in which the preference has been in force, New Zealand has increased

her trade with Canada tenfold, while our own exports have scarcely doubled.



RICE STRAW PAPER.

A correspondent from the State of Texas seeks from the "Pulp and Paper Magazine" information concerning the manufacture of pulp and paper from rice straw. It appears that in Texas, as well as Florida, large quantities of rice straw are allowed to go to waste every year, and this might be utilized in the production of paper.

In reply we would point out that rice paper proper, for which China has so long been celebrated, is not made from rice straw at all, but from a plant called *Aralia Papyrifera*. In making this paper the wood of the plant is peeled off by a knife, by hand, in thin layers, analogous to the layers of birch bark, but, of course, much tougher. These cylinders are opened out and pressed flat, crosswise on each other, under heavy pressure, and the manufacture of this paper is a hand industry throughout. It is not carried on outside of China. The so-called rice papers of Great Britain and Europe, used in the production of Bibles, prayer books, and for other special purposes, are not usually of Chinese make, but are made from some vegetable fibre, such as linen and other strong fibres, either from rags or by direct treatment of the fibres. Before the era of wood pulp large quantities of straw from wheat and other cereals were used in making cheap papers and boxboard, but wood pulp has largely displaced these materials. When wood pulp again becomes dear through the destruction of the forests other materials will be called into requisition for cheap

papers, and there seems no reason why rice straw should not be turned into account in time. In supplying local demands freight would be saved and materials that would otherwise be wasted would be turned to account.

We would advise our correspondent to make a test on a modest scale to prove, first, the cost of collecting the raw material, the cost of manufacture, and then the relative value of the paper produced compared with paper from wood pulp. If this would show results comparing favorably with wood pulp paper, tests on a commercial scale would be justified. An expert paper mill chemist, such as Arthur D. Little, of Boston, would render good service in carrying out such experiments.

F. P. Veitch, chief of the Paper Laboratory of the Bureau of Chemistry, Department of Agriculture, Washington, has written an interesting monograph on paper-making materials, in which he mentions that some experimental work has already been done in this field. He says that an examination of paper made from the rice straw of the Southern States shows it to be similar in all respects to paper made from other cereal straws, and any advantage it would possess would, therefore, be due to the plentitude of the supply. "In the tide water regions of the Southern States," he adds, "far from the chief points of paper production, paper may possibly be made from the large quantity of rice straw, now wasted, for less than it can be made in the present paper-making centres and transported to the Southern markets." Under such conditions, therefore, the market for rice straw paper would appear to be local rather than general in competition with wood pulp

paper. Even so, the utilization of such materials would be a good thing, for the day will come when means will have to be taken to relieve the destructive pressure on the spruce forests of the world now going on under the present system of manufacture.



THE DEMAND FOR KRAFT PAPER.

The superiority of genuine Kraft brown paper over its numerous imitations is indicated by the onslaughts which have been made on it by rivals in the United States, where the manufacturers do not appear to have made any notable success in producing it. All sorts of stories have been set afloat to the effect that customers at the big departmental stores complain of the dark color of real Kraft on the score of its looking coarse and cheap. This is an absurd objection, because one can get almost any shade among the genuine Kraft papers now being imported into the United States. The object of the campaign, of course, is to help some of the American home-made imitations. Undoubtedly, some of these imitations are fairly good papers, in appearance at any rate; what they lack is strength, and this highly important quality of a wrapping paper is exactly what the Kraft supplies. In spite, however, of all the efforts of rivals, it is generally acknowledged in New York and Chicago that the call for real Kraft Brown is a constantly growing one. People who once recognize its merits want it again, and so, though the imitation papers have been considerably improved in quality and substance, owing to the necessity to approach the real article as closely as possible, the Kraft papers find no diffi-

culty in fully holding their own—and a little more each month. And this is the experience in Canada, though, fortunately, we have our own genuine Kraft, without importing it.



INSUFFICIENTLY DILUTED PULP.

Weakening of paper is attributed by Papier Fabrikant to the high-speed attained by modern paper machines. The effect of the shaking is lessened in proportion as the speed is increased, as a quick forward motion from the dry end to the wet end tends to make the fibres arrange themselves too exclusively with their lengths in that direction, whereby the shaking action, the object of which is to felt the paper by making the fibres lie in all possible directions, is largely discounted. It is unfortunately a common practice to combat this difficulty (paper must be made rapidly nowadays) by supplying the pulp to the wires in an insufficiently diluted condition. Such a method of working, however, only makes matters worse. It is true that the pulp must be thicker for a fast-running machine than for a slow one, but if an error must be made it is better to have the pulp a little too thin than a little too thick. The great point is to have an efficient shaking gear. This has been recognized by the makers of modern fast-running machines, and great improvements have been introduced, especially in the way of vertical up-an-down shaking, which, by the way, also assists the removal of the water by the suction boxes. The density of the pulp should be determined by a hygrometer, and once a pulp has been found to be of the right degree of dilution for any special purpose the density should be recorded, and all subsequent batches of the same paper should be made with a pulp of that particular dilution. Experience has shown that working by the hygrometer is especially necessary when the paper contains heavy mineral fillings, such as china clay, barytes, sulphate of lime, etc.

PULP AND PAPER NEWS

The Spanish River Mills at Espanola, Ont., are now making 120 tons of pulp per day. The water is good.

* * *

The Riordon Paper Company has made connections with the Canadian Northern Railway at Hawkesbury, Ont.

* * *

The St. Lawrence Paper Mills Company, Milles Roches, Ont., is about to install machinery to handle old magazine stock.

* * *

The Pejepcott Paper Co., Sherbrooke, Que., has been incorporated. Harry R. Fraser, of that place, is chief agent.

* * *

T. G. Wilson, of Wilson, Munroe & Co., bookbinders, Toronto, was hurt by the fall of an awning pole on York Street.

* * *

Joseph Taylor for forty years a successful stationer and bookseller in Toronto died a few days ago after a long illness.

* * *

Richard Brown, of the firm of Brown Brothers, Manufacturing Stationers, Toronto, celebrated his 75th birthday a few days ago.

* * *

A cabled dispatch from London states that the Privy Council has dismissed the appeal of Price vs. the Chicoutimi Pulp Company.

* * *

The Peribonca Pulp Company, Peribonca, in the Lake St. John region of Quebec, whose mill was burned a year or two ago, will rebuild at once.

* * *

Four of the employees of the Riordon Paper Company, engaged in log driving, were drowned in the Rouge River, Que., through the capsizing of their boat.

* * *

Captain Ward-Higgs, manager of the Port of Chicoutimi Company, at Chicou-

timi, Que., which ships so much pulp every year, died recently of heart failure.

* * *

The Bayless Pulp and Paper Company, Beaufre, Que., recently incorporated under Quebec laws, has appointed A. J. Schlager of Beaufre its principal agent.

* * *

The New Brunswick Pulp and Paper Co.'s mill at Millerton, N.B., is already being enlarged. About 150 hands are now employed, but more will be required shortly.

* * *

The Montreal Paper Company's mill at Port Neuf, Que., which has been idle for some time past has been taken over by W. Bishop, formerly of that company and will be put into operation.

* * *

The Signal Printing Co., Limited, Goderich, Ont., has been incorporated with a capital of \$10,000 to take over the job printing and newspaper business of Vanattee & Robertson in Goderich, Ont.

* * *

The St. Maurice Industrial Company, which controls a large part of the water power at La Tuque, Que., is now putting up a roasting mill and will shortly prepare plans for the erection of a large pulp mill.

* * *

The first units of the large hydraulic power plant at Fort Frances, Ont., will likely be in operation early in August next. The concrete foundations of the new pulp mill are now being put in.

* * *

Students of the Senior Forestry Class at Toronto University are now in camp on the south shore of Lake Nipissing, gaining practical experience amidst some fine red pine which has never been burned over.

* * *

Antoine Girard, a teamster employed by the Imperial Paper Mills, Sturgeon

Falls, met with a serious accident. While loading blocks in the yard, a number of them fell on him, breaking his leg above the knee.

* * *

Owing to the high water in the St. Maurice River, which is 10 feet above normal level, the booms at Grand Piles, Que., which held back 400,000 logs, collapsed last month resulting in losses to the Laurentide Paper Company.

* * *

The Belgo-Canadian Pulp & Paper Company, Limited, have moved their sales department headquarters from the mill to St. Nicholas Building, Montreal. The sales manager is A. G. Campion, for many years with Edward Lloyd, Ltd.

* * *

The pulp mill at Swanson Bay, B.C., expects to begin manufacturing pulp this month. Work is being rushed on the new mill and 100 men will be employed at the start. The new wharf will be, when completed, the largest north of Vancouver.

* * *

The Rudd Paper Box Company has bought out the business and plant of the Imperial Paper Box Company at 485 King Street West, Toronto, and will combine the two businesses. Although burned out recently, the former speedily resumed operations.

* * *

The E. B. Eddy Company's casing board factory at Hull, Que., is ready for operation. A large part of the material produced will be used by the company for its own purposes, after which it will be sold to other consumers.

* * *

The premises and stock of the Peerless Carbon and Ribbon Manufacturing Company, Toronto, were damaged by fire to the extent of about \$5,500. The Knapp Envelope Company's stock in the same building was slightly damaged by smoke.

* * *

The Canadian Pacific Sulphite Company has sold forty-one sections of tim-

ber on Owekno Lake, at head of Rivers Inlet and twenty-nine sections on Princess Royal Island, British Columbia, to Thos. Meredith, of New Westminster, and R. W. Gibson, of Victoria.

* * *

The Thompson Lumber Company, Ltd., Selkirk, Man., has been incorporated with a capital of \$40,000 to build and operate saw and shingle and pulp mills, etc. J. J. Jackson, B. B. Thompson and E. J. Farr, all of Winnipeg, are incorporators.

* * *

The McLellan & Smith Lumber and Pulp Company, of Burton, N.B., has been organized with the following officers: President, R. W. McLellan; Vice-President, Gilbert Smith; Secretary-Treasurer, S. M. Dingee. They will operate the Smith Mill, at Burton.

* * *

The Norwegian steamer "Fram" arrived on May 24th in Portland with a cargo of 1,800 cords of spruce pulp-wood from Chatham, N.B., for the International, the first lot this season. The steamship "Mills" is entering the pulp-wood trade between Chatham and Portland.

* * *

A movement is on foot in St. John, N.B., to induce Bonnel & Hardy, of London, Eng., to erect their proposed Canadian paper mill at that place. Harold A. Hardy, of the above company, will shortly visit Canada in order to select a site, first going to Dartmouth, N.S.

* * *

The Bay Shore Lumber & Pulp Company, Salmon River, N.B., has commenced driving operations and the outlook for the season is bright. Water is plentiful and the operations have been uniformly successful. The season's cut is about 7,000,000 feet, and this will be cut up into pulp-wood.

* * *

The New Empire Wall Paper Co., Limited, Toronto, capital \$15,000, has been granted a charter to take over from

F. V. Jones the stock-in-trade of Empire Wall Paper Co., and to manufacture and deal in wall paper, paper hangings, etc. A. T. Struthers and G. E. McCann are among the provisional directors.

* * *

Contracts have been awarded to a New York firm for the construction of an electrical plant at Grand Falls, on the St. John's River, New Brunswick. This plant is estimated to cost \$5,000,000 and to develop 120,000 horse-power. Several new factories are to be established, including a large pulp and paper mill as referred to in last issue.

* * *

The Kingston Pulp Co., Limited, Kingston, Ont., capital \$100,000, has been granted a Dominion charter to make and deal in wood, pulp, wood flour, fibre, sulphite, pulp, paper, cardboard, etc. The incorporators are Daniel Smith, Colin A. and Hugh Macpherson, manufacturers, and Francis King, barrister, all of Kingston, and F. Hall Hooper, superintendent, of Brownsburg, Que.

* * *

The amount received during the last fiscal year for timber dues by the Government of Ontario was \$1,786,339. Hon. Frank Cochrane announces that in future no more large timber sales will be held and there will be no more perpetual leases. Future sales will be for small lots damaged by fire or needed for immediate settlement. In future timber will be sold by the thousand feet standing in the forest by public tender.

* * *

Royce and Henderson, solicitors, Toronto, sued the National Trust Company, trustees of the estate of the late E. O. Bremner, of Toronto, for \$19,000 for services rendered and commission. Mr. Bremner was interested in the Sturgeon Falls Pulp Company. The services for which the claim is made were in the securing of a subsidy of \$160,000 from the

Dominion Government for the building of a railway by the Pulp Company from Sturgeon Falls to Temagami Lake. Plaintiffs were awarded costs.

* *

After a long spell of almost unprecedentedly low water on the Chaudiere, a new trouble has arisen in the shape of a tremendous volume of the same. J. R. Booth had to close his saw and paper mills and the E. B. Eddy No. 4 paper mill also had to close down. For a time several factories were in actual danger owing to the rush of water. These disastrous sudden changes in water flow may be attributed to the absence of dams on the Upper Ottawa and, going further back still, to the cutting of the forests.

* * *

The contract for printing for the Ontario Government for the next five years has been awarded to the Methodist Book Room and E. H. Harcourt & Co., of Toronto. The contract was formerly held by Warwick Bros. & Rutter, Limited. The divisions of the contract are, first, votes and proceedings, bills, statutes and bindings; second, departmental reports, sessional papers, Parliamentary returns and bulletins; third, printing of the Ontario Gazette; fourth, job work; fifth, ruling, printing and binding of blank books. It is claimed that there will be a saving of \$28,000 per year.

* * *

The Imperial Paper Mills of Canada, Limited, Sturgeon Falls, has brought action against the Occidental Syndicate of London, Eng., and John Craig, Sturgeon Falls, for an injunction to restrain the syndicate from transferring to John Craig property consisting of 6,400 acres in the northwest corner of the Nipissing Indian Reserve, adjoining the township of Springer, being two and a half by four miles in extent. Plaintiffs also seek to restrain defendants from dealing therewith so as to prejudice the plaintiffs' rights, and ask for a declaration that the Occidental Syndicate holds the said property in trust for the plaintiffs.

TESTING CELLSTUFF.

—

In the purchase of cellstuff it is advisable to be fully acquainted with the purpose for which it is ultimately to be used, says E. Belani in *Papier Fabrikant*. For kraft papers, with 8-10,000 metres breaking strength, not requiring a special degree of whiteness, it is necessary to use Swedish pulp. In such cases it is well to first make a trial purchase of 5 or 10 tons, in order to see whether the desired result can really be attained.

For fine and firm papers, such as are used in maps, documents, etc., and the breaking length of which need not exceed 5-7,000 metres, first grade cellstuff from the wood of coniferous trees is purchased, preferably already bleached. For the very finest papers, used for photographs, a special cellstuff is needed, which must be absolutely pure and carefully freed from splinters, twigs, and resinous substances, as well as from metal particles of a reducing and oxidizing character, such as iron, lead, copper, brass, bronze, etc. Some factories have now made such progress that they sell for a proportionate price white cellstuff of guaranteed absolute purity, for photographic papers, the tests made by the writer of the article bearing out this claim.

Lower grades of paper admit of the use of inferior pulp, naturally containing splinters, black twigs, and particles of rosin and coal. Experience here teaches how far pulp containing such impurities can be profitably used. One thing has, however, to be guarded against, even in lower grades of pulp—the presence of gypsum (CaSO_4). This is formed in the boiling and bleaching of the cellulose, and must be carefully washed out. It is therefore a mistake in manufacturing if pulp containing gypsum is sold, it being easily recognized by its small white points, about the size of pins' heads. The points will not take color, and look like a sprinkling of sugar on the finished paper. It

is humorously suggested that while this effect is by no means normal, some enterprising manufacturers might make capital out of its normal appearance.

All normal cellulose must be entirely neutral, not showing any change in color with either blue or red litmus paper.

In the manufacture of special grades, such as opaque qualities, soft cardboard for copper-plate printing, or blotting paper—soft, absorbent cellstuffs can be often used, principally from the wood of leaf-bearing trees and from alfa. The test here is the degree of absorbent property, by which the buyer can see whether the pulp is suitable or not. The test can be very simply made.

Two strips of about 0.58 in. wide and 9.45 ins. long are cut from a large piece of cellulose. These strips are placed in a suitable receptacle and are plunged 0.59 in. deep in a glass with distilled water. At this point the exact time is noted. After ten minutes have elapsed the height is read off to which the water has risen from the surface, this being effected by looking at it against the light.

The mean degree of absorption is then calculated by the formula $S/m = \frac{h_1 + h_2}{2}$; S/m being the average degree

of absorption. For first-grade absorbent cellulose the requirements should be 80-90 mm. (3.15—3.54 ins.), and for rapidly absorbent grades 90—120 mm. (3.54—4.72 ins.). The buyer must, however, keep in view that such absorbent pulps are uncommonly soft, and cannot be expected to display any particular strength.

The following general characteristics of cellstuffs are quoted:—

First.—Sulphite cellstuff from the wood of coniferous trees gives firm, hard pulp.

Second.—Sulphate cellstuff from the wood of coniferous trees gives pulps in general soft, but still firm.

Third.—Soda cellstuff from the wood of coniferous trees gives pulps in general soft, but still firm.

Fourth.—Soda or sulphite cellstuff from the wood of leaf-bearing trees gives soft pulps for opaque paper, the first named class being particularly absorbent.

Fifth.—Alfa and reed cellstuffs give very voluminous pulps for papers with a thick feel, without any particular degree of absorption.

Whichever of these various kinds is before the buyer it is only possible to determine by microscopic observation whether the substance is pure or mixed, and what view it has for the buyer from the technical point of view of the quality of the fibre. Without following up in detail the question of microscopic research, it is remarked that patience and diligence will lead to the end in view, even though the inherent difficulties may at first seem almost insurmountable.

A practical moral is deduced from the foregoing explanations in the following words:—

“The methods of the old school of our merchants in judging cellstuffs only by external appearance or by tearing them with the fingers, do not to-day suffice. Large concerns would do well to appoint a capable paper expert to test their materials. It would be an excellent investment for them to do so.”

Details are, however, given of a simple method of testing cellulose intended for photographic paper to discover the presence of iron, rust, and lead. This test can be carried out by any buyer: Pieces measuring 3.94 by 7.87 ins. from the sample drawn are placed in separate flat dishes. Over the contents of the first dish is poured a solution of ammonia, and after its evaporation one of red prussiate of potash (0.53 oz. in 30.50 cub. ins. of distilled water), being then treated with 0.061 cub. in. of concentrated muriatic acid. If, after about ten minutes, blue or bluish-grey points and stains appear,

the cellulose contains metallic iron. Over the contents of the second dish is poured a solution of ammonia, and after its evaporation one of yellow prussiate of potash (0.53 oz. in 18.30 cub. ins. of distilled water), being then treated with 0.061 cub. in. of concentrated muriatic acid. If, after about ten minutes, blue or bluish-grey points and stains appear, the cellulose contains rust (oxide of iron). If in addition, or alone, there are reddish-colored points, metallic copper or bronze is present.

A two per cent. potassium iodide starch paste is poured into the third dish, which is immediately covered, so as to keep out the dust. If, after about fifteen minutes bluish-violet stains and points arise, the cellulose contains chlorine and chlorine combinations. In these four cases the cellulose is unsuited for the manufacture of photographic paper.



TRADE ENQUIRIES.

The following inquiries relating to the Canadian trade have been received at Ottawa. The names of the firms making these inquiries, with their addresses, can be obtained upon application to Superintendent of Commercial Agencies, Department of Trade and Commerce, Ottawa, or publishers “Pulp and Paper Magazine,” Toronto.

552. **Paper.**—A South African firm asks for quotations for paper, 10,000 to 15,000 sheets.

604. **Wood Pulp.**—A Manchester firm asks for samples and prices of wood pulp from Canadian exporters of same.

586. **Wrapping Paper.**—A large South African firm wishes to have quotations from exporters of wrapping paper.



—Seymour Township, Ont., will on the 21st inst. vote on a by-law to grant the Northumberland Pulp Company a fixed assessment of \$2,000 for 10 years on a \$10,000 pulp mill they propose building at Ronney Falls.

" KRAFT " PAPER MACHINES.

The strength of a "Kraft" paper depends to a great extent on the construction of the machine on which it is made, especially as regards the number of drying cylinders. It is well established that when such paper is dried by pressing it in contact with a single large cylinder the strength in the cross direction of the paper is relatively much greater than is the case with paper dried on a range of ordinary drying cylinders.

The writer has had the opportunity of testing papers made from exactly the same stuff treated in exactly the same manner, but run on three different machines provided with five, ten and sixteen drying cylinders, respectively. His observations showed that the paper made on the machine with the smallest number of drying cylinders had the highest tensile strength, both in the cross direction and in the machine direction. Hence he recommends that all tough papers should be made with as few drying cylinders as possible, and that in order to compensate for the smaller capacity of such machines the drying cylinders should be constructed of correspondingly larger diameter.

The unfavorable effect of a large number of drying cylinders is attributed to the tension to which the paper is subjected in passing from one cylinder to the next, so that strong wrapping papers should be made at moderate speeds and loose tensions.

To avoid tensions there should preferably be only one pair of press rolls, but if two are unavoidable the second should have a horizontal, not a vertical, felt. The driver of the presses and cylinders should be steady, without vibration or slip, and the cylinders should not be divided into separately driven groups. It is advantageous to run the first drying cylinder without a drying felt, and to provide a current of air by means of a fan.—*Papier Zeitung*.

SCOURING AND BLEACHING FIBRES.

When cellulose fibres are heated above 100 deg. C. in scouring, it is attacked by the lye, and tendered by partial conversion into alkali-cellulose. The action is of course greatly intensified by the prolonged time requisite for the lye to dissolve out the pectic bodies. These penetrate the fibre completely, and the lye, therefore, must do the same. To aid this penetration it is usual to heat in a high-pressure kier, with the result that the temperature rises above 100 deg. C., and often far above it, to 175 deg. even. The Société Anonyme des Papeteries de Galas has obtained a French patent for a process in which the necessary penetration is said to be obtained by applying pressure without raising the temperature above 100 deg. The lye is heated to the temperature in a separate vessel and driven, under the pressure of a powerful force pump, through the fibre, which is placed in a vessel unheated except by the lye. The lye is heated by passing through a hot coil on its way to the pump. The new process is equally applicable to all kinds of fibre now used in paper-making. After scouring, the fibres are rinsed till the rinse-water runs off barely alkaline, soured in a mixture of concentrated sulphuric acid with one hundred times its weight of water. They will then, it is claimed, be quite white, while still fully retaining their original strength. The kier used may be fixed or rotatory, and as the temperature of the dye does not exceed 100 deg. C. it may be pumped repeatedly through the fibre so often that subsequent treatment with bleaching powder is unnecessary, and in fact detrimental.



—The seventeenth National Irrigation Congress will meet in Spokane, Wash., on August 9th to 14th next to consider and take action on irrigation, drainage, forestry, deep waterways, good roads, and home building.

VAPOR FROM PAPER MACHINE ROOMS.

A writer in the *Wochenblatt für Papierfabrikation* refers to a method of removing vapor from over paper machines. He remarks, however, that the machine room must be favorably situated and that the machines must be making papers which give off but little vapor. With a view of providing an effective yet inexpensive remedy the writer erected a covering 10 to 11 feet high over the part of the machine affected. This was galvanized sheet iron longitudinally strengthened with angle iron transversely and diagonally. The covering was somewhat wider than the machine, and sloped at an angle of 15 to 20 per cent. It was suspended from the ceiling by circular iron rods. Beneath this cover were placed several old longitudinal wires at a corresponding angle and fastened with the cover to the iron supporting rods. The wires served to disperse the vapors to some extent. The drops formed then ran down the sloped galvanized surface and were conducted into a small drain. If the quantity to be carried away was more than the cover could take up the drops would fall on the wire, from which point they would gradually evaporate. In this way not a single drop would fall back on the machine. The exact angle for the cover would have to be ascertained. Doubts are held, however, whether this method would suit a large plant.



MOISTENING PAPER ON THE MACHINE.

A discussion of this subject in the *Papier-Zeitung* brings out various opinions as to the merits of different moistening systems. One paper mill reports inability to sufficiently moisten with spray pipe paper running at about 150 feet per minute on 59 and 63-inch machines, and

weighing not under $1\frac{3}{4}$ ounces per square yard, stating that when moistened to any extent the rolls run unevenly. They add that the paper when on the dampening machine is much better in this respect, uneven running only taking place with very hard and heavily sized rope paper.

In response to this statement another correspondent expressed his opinion that there was much greater risk of unevenness and creasing of the web with spray pipes than with rotating brushes. In spray pipe moistening there may easily be a more powerful jet of water through one opening than through the others, this unequal moistening causing the unevenness.



—The Belgo-Canadian Pulp & Paper Company, Ltd., take exception to a statement made by President Hastings, of the American Paper and Pulp Association, to the effect that that company had within less than two months offered paper at a price netting \$33.40 at the mill. A. G. Campion, the sales manager of the company, points out that the paper referred to is a portion of a contract for large tonnage sold by them to an English firm at \$36 net f.o.b. mill, for delivery during this year, and which it is obligated to take. The firm no doubt found they did not need the full quantity bought and must have offered Belgo-Canadian paper below cost.

—A meeting of creditors of the Montrose Paper Co. took place in Toronto, Monday, and it was decided to wind up the estate as rapidly as possible, and to invite tenders for purchase of the property. American parties are understood to be contemplating taking it over. Meantime the mill is running, and there is a stock on hand of about 250 tons of book, bond, writings and cover papers. The situation is not promising for unsecured creditors.

PULP CONSUMPTION IN UNITED STATES.

A report on the consumption of pulp-wood in the United States during the year ending December 31st, 1908, just issued, shows a total consumption of 3,346,106 cords, valued at \$28,040,697, as compared with 3,962,660 cords, valued at \$32,360,276, in 1907.

Statistics relative to the consumption of wood in the manufacture of pulp are annually collected and published by the Bureau of the Census in co-operation with the Forest Service of the Department of Agriculture, and this advance statement of the quantity consumed in 1908 is made public at this time in response to the demand for information concerning the industry:—

creasing percentage of slab wood and other mill waste, at a much lower cost per cord, is from year to year being reported. This drift in the industry is clearly indicated by the fact that 193,234 cords of mill waste were reported as consumed in pulp manufacture during 1907, while 252,896 cords of this material were used in 1908. The reported total production of air dry pulp for 1908 was 2,118,947 tons, as against 2,547,879 tons for 1907.



REMOVING KNOTS FROM PULP.

Various arrangements are used for catching lumps from the pulp on its way to the wires. For example, we have ma-

Kinds of Wood.	1908		1907	
	Quantity Cords.	Cost.	Quantity, Cords.	Cost.
Spruce, domestic	1,487,356	\$13,024,104	1,795,278	\$15,358,027
Spruce, imported	672,483	7,130,357	905,575	8,689,159
Hemlock	569,173	3,423,789	576,154	3,270,700
Poplar, domestic	279,136	2,235,448	352,142	2,763,889
Poplar, imported	23,081	184,326	19,798	167,039
Pine	84,189	512,013	78,583	506,517
Cottonwood	45,679	324,053	66,084	469,422
Balsam	45,309	327,624	43,884	332,984
Miscellaneous	139,700	878,883	125,162	802,539
Total	3,346,106	\$28,040,697	3,962,660	\$32,360,276

The generally unfavorable conditions obtaining in most branches of manufacture during the calendar year 1908, and especially in the pulp industry, are reflected not only in the smaller total consumption of wood as compared with 1907, but also in the fact that only 251 mills were reported in operation, as against 258 for the preceding year. Among the various species the decreases in quantity consumed were chiefly in the higher priced woods—spruce and poplar. The average cost per cord for imported spruce advanced materially. For domestic spruce the increase was less marked, the explanation lying in the fact that the imported wood consisted entirely of cord wood, while under domestic spruce an in-

chines in which the pulp is forced through a series of shaking sieves. The cleaning of the sieves is an important matter. It may be done by rotating brushes, by mere rinsing, by compressed air, or by shaking the sieve in standing water. The great point is to avoid adding unnecessarily to the consumption of water, already very great in a paper mill. Knots or lumps usually consist of fibres felted and tangled together, and their size depends chiefly on the amount of yarn used in making the original textile fabric, and the rags used by the paper-maker come from fabric made with all kinds of yarn. It is evident that it is better to destroy the knots than to remove them, as there-

by waste of material is avoided. The first method of doing this was to pass the pulp between rollers provided with cutting edges, but it has been found that these are not necessary. Smooth, but better roughened rolls, if the two of each pair are revolving at different rates, act with perfect efficiency. In some cases the two kinds of rollers are combined, the pulp passing first between cutting rollers, and then between rollers of the other kind, to complete the destruction begun by the cutters. Rapid working of the rollers conduces to efficiency in destroying the knots, and is, of course, requisite in order to supply the wires fast enough. The rollers used are about 8 inches in diameter and several pairs are employed, to preclude all chance of any of the knots escaping disintegration. If the pairs are set close together the machine will not take up too much room. The number of pairs is usually from three to six, according to whether they are all of the same kind or not. The rollers are set one above another, to save floor space. As regards the difference in speed when two rollers of a pair are worked at different rates, no exact rule can be given. It depends, like the number of rollers to be contained in the machine, upon the character of the pulp and on the kind of rollers used. Smooth or roughened rolls must be provided with springs or weighted levers, so as to exert pressure on the knots, or the difference in their rates of revolution will not lead to the desired result. Double cutting rollers, on the other hand, are not weighted, but must be suitably adjusted and fixed. They must not yield to the tendency to thrust them apart attending the passage of the knots between them, and their cutting edges, whether they are in form of ribs or prisms, must co-operate, an edge on say the upper roller acting with the corresponding edge on the roller like the two blades of a pair of scissors. Hence not only is accurate adjustment necessary, but the two rollers of the cutting pair must be driven at exactly the same rate. An excellent plan is to make the cutters

of thin steel discs, with a hole in the middle, so that they can be threaded on to the roller. If these are closely set it is impossible to put them on more than one roller. In this case the other roller is covered with a smooth casing of wood or leather to prevent the cutters from being blunted. Care must be taken that the cuts made on the casing of the smooth roller do not get too deep, or the cutters will be clogged with fibres. The cuts must not be more than just visible. This result is, of course, secured by suitably adjusting the pressure between the rollers, by counter-weights or otherwise. If this arrangement is adopted, the smooth roller is turned very slightly slower than the cutting roller. To prevent the escape of knots coming between the discs, it is advisable to have a second pair of rollers set so that the discs of the second pair are opposite the spaces between the discs of the first pair.

The arrangement last described moves rather slowly, as the works of the rollers become defective if they are too quickly driven; and attempts have been made, with considerable success, to use toothed discs separated by collars, passed over the roller alternately with the discs. In this case it is necessary that the teeth of one roller should gear with those of another. There should be as many toothed discs as possible, but the best shape and size of the separate teeth does not seem yet to have been satisfactorily determined. Whenever discs of any kind are used the pulp should always pass afterwards between the roughened rollers above described.

Yet another machine used for opening out and destroying knots consists essentially of rollers armed with spikes like those of a devil. These work at a very great speed. If necessary their action may be supplemented by a subsequent treatment in one of the machines already described.

One other machine remains to be noticed. If a knotty pulp is put into a large centrifugal, the knots go to the outer wall of the drum. If, then, that is

provided with sharp teeth, or if toothed rings are fitted into it, the knots are torn up as they reach the wall of the drum. Various practical applications of this idea have been made. One variation of the principle is to have sharp edged immovable bars hanging down into the pulp in the centrifugal. The knots are violently brought into contact with these by the motion of the drum, and the disintegration of the knots is to a large extent effected before they reach the inner wall of the chamber.



THE MANUFACTURE OF NON-STRETCHING PAPERS FOR THREE-COLOR PRINTING.

It is well-known that papers intended for two or three-color printing must not be too hygroscopic, nor must they be too heavily calendered or too much weighted with starch. One of the manufacturers is of opinion that the leaves ought to be cut on the shorter sides across the sheet, and on the longer sides parallel to the travel in the machine, because the stretching is always greater in the former direction.

The same gentleman has also noticed that papers made in very wide machines stretch much more than those made from the same pulp on narrower machines. The tension exerted in the machine and in the drying process ought to be as small as possible. It is important that the paper should be satined in the roll, and then piled up in sheets and calendered in a calender intended for working with sheets, through which they pass first in the transverse direction, and then diagonally across each sheet. In this way stretching is checked both as regards the length and width of the sheet.

The extensibility of the paper is determined by measuring the length and width of a dry sheet soaking it in water for ten minutes, removing the excess of water after draining with blotting paper, and measuring again. The first writer thinks

that the most important point in the manufacture of the paper in question is to make it in webs as narrow as possible.

The second writer does not regard the width of the web as a factor of importance, and lays most stress on calendering the paper in both directions, provided that a suitable pulp has been chosen, without which no manufacturing process will give satisfactory results. He differs from his colleague also as regards the best method of estimating the extensibility of a paper. Instead of comparing the size of the dry sheet with that of the same sheet damp, he damps the sheet to begin with and notes whether its area is increased by pressure, and, if so, to what extent. This supplies an indication of the probable amount of stretching by the couch roll and in the drying machine.

Stretching in the drying machine is much diminished by increasing the number of rollers, so that the paper is compressed over a considerable length at a time as fast as it is loosened by the escape of the water from it in the form of steam. The same effect may be produced, but much less satisfactorily, by passing the paper between suitable loaded rollers on its way from the couch roll to the drying machine. One other point mentioned by this second correspondent is that the consolidating pressure above spoken of should be far greater than that which the finished paper will have to undergo during the color printing process.



ENGINEERS' MANUAL.

The Engineers' Manual, published by the Reeves Pulley Company, Columbus, Ind., is a handy little book, giving a complete compilation of technical data, tables and cuts respecting the "Reeves" Variable Speed Transmission. It is intended primarily for use of salesmen, engineers and superintendents who have to do directly with the erection and operation

of machines. It will also be found of value to prospective purchasers and to the engineer wishing to obtain a detailed idea of the construction and profitable application of this form of transmission. The manual bound in leather will be sent postpaid upon receipt of \$1, or to reputable engineers or manufacturers the same book bound in heavy paper will be sent free upon application to the compilers and publishers.



BUILD UP CANADIAN INDUSTRY.

(From the Toronto News.)

The average Canadian prefers to see the country's raw materials utilized at home in the manufacture of goods to be shipped by our transcontinental trade routes to Great Britain and the continent of Europe. The Dominion has extensive wheat areas, iron deposits, timber and pulp-wood forests and one of the only two valuable nickel deposits in the world. In its coal areas and innumerable waterfalls, the country possesses unsurpassed sources of motive energy. Thus equipped, why should Canadians content themselves with exporting wheat, iron ore, coal, nickel matte, saw logs and pulp-wood? Why should we not instead sell flour, iron and steel products, refined nickel, sawn lumber and paper? The continued pursuit of this more intelligent policy, which for years we have been engaged in working out, will make for the development of the whole Dominion on broad lines, and for the creation of a powerful nation within a united Empire.



CANADIAN TRADE IN PULP AND PAPER.

The Customs Department at Ottawa supplies the following figures respecting the quantity of pulp and paper exported during the fiscal year ending with March

31st last: To the United States, wood pulp, chemically prepared, 769,514 cwt., and mechanically ground, 3,033,885 cwt.; to Great Britain, chemically prepared, 13,660 cwt., and mechanically ground, 973,598 cwt. The export of paper during the same period was: To the United States, wall paper, rolls, 19,974, valued at \$6,440; felt paper rolls, 109,863, valued at \$101,835; wrapping paper, 594,695 pounds, valued at \$24,264; printing paper, valued at \$791,533; paper of other kinds valued at \$34,673. To Great Britain, wall paper, 512 rolls, valued at \$159; felt paper, 5,060 rolls, valued at \$21,896; printing paper to a value of \$922,278, and other paper to a value of \$354,887. During the same period 901,861 cords of pulp-wood were exported to the United States. In the matter of export the sales of wood for wood pulp to the United States have increased. In the last nine months of 1908 the value was a little over \$3,500,000, compared with a shade above \$2,000,000 for the corresponding term of 1906. No other country was a purchaser from Canada. In wood pulp the sales in the last nine months of 1908 were \$2,000,000, or \$750,000 less than in 1907.



—A. D. Little, the consulting chemist of Boston, has incorporated his laboratory business, a good sign of the growing importance attached to chemical tests by paper-makers and other manufacturers.

—At a recent annual meeting of the French Paper-makers' Association, held in Paris, M. Laroche-Joubert said that he had recently had occasion to differ greatly from certain Norwegian pulp sellers on the question of the alterations in pulp that were caused by the presence of rosin. M. Vigreux said that it was not so much a question of terms as of the distribution of the stuff in the pulp. Further, it was difficult to specify the precise appearance which a pulp should have. The central committee of the Association has the matter in hand.

MONTREAL CORRESPONDENCE.

(Special to the Pulp & Paper Magazine.)

Montreal, June 5th, 1909.

Sir Lomer Gouin, Premier of the Province of Quebec, at a public dinner tendered to him in Montreal, on June 1st, made an announcement of more importance to the pulp and paper and lumber concerns than any which has been given out in years. Said he:

"I understand, although I may be mistaken, that public opinion in this province is now very definite on the exportation of our wood to the United States, with whom we wish to keep the most friendly relations. Our powerful relations have need of our pulp-wood, the most important substance of their paper. Up to now we have permitted the exportation of this substance. It is not a question of stopping the exportation of pulp-wood belonging to private parties, but to prevent the exportation of pulp-wood belonging to the Crown.

"I must state that my colleagues and myself think that the time has come for this province to do what Ontario did some years ago. Perhaps some private interests will suffer; but we think that the great majority, the mass of the population, will benefit by it; and it is because we seriously trust in this, that we revise this tariff, inserting a clause to the effect that all pulp-wood taken from our national domain cannot leave our territory before being made into pulp here."

Speaking of the revenue derived from taxes levied on wood-cutting in the forests belonging to the Crown, he said:

"We made, about ten years ago, an arrangement with the bearers of licenses to wood-cutting rights on the limits. With the end of this year, the arrangement will terminate. I think it is important to warn, from to-night, the license bearers and all those who are interested with them, that when that arrangement—which we have respected—is terminated, the wood-cutting dues will be considerably increased. It will be the same

with regard to the taxes we receive from the bearers of licenses."

Quebec Settlers.

At the Gouin banquet, on the 1st inst., the Hon. W. A. Weir, Provincial Treasurer, made some comments on settlers which bore out the claim advanced by Carl Riordon, in an interview in these columns, last month. Said he:

"There has been further talk of free land for free settlers. This means that the lumber merchants of the province should be bought out and the forest lands given over to the settlers. In addition to the loss of a million per annum, in revenue, which the province would thereby lose, it would take fifty millions to buy out the timber limit holders. Who is to pay the interest on that money? . . . I have not a word to say against the honest settler who wishes to establish himself in the rear lands as a bona fide settler; but experience has shown that a large proportion of those who declare themselves bona fide and thereby obtain a Government grant of one hundred or two hundred acres, have very little intention of settling. It is not land that these so-called settlers want. It is the trees, which belong to Montreal as well as the old-settled districts. Already this cry of free land for free settlers has affected the investment of capital in the pulp and paper industry of the province, for capitalists are not sure that, should a Conservative administration again be in office, they would not lose the whole of their investment."

High Water at Ottawa.

Mr. John A. Hardisty, Montreal manager of the E. B. Eddy Company, Limited, was asked by the Pulp & Paper Magazine, to what extent the mills at Ottawa were effected by the high water in the river. "I understand," said he, "that some of the mills have been compelled to close down temporarily, but

aside from this I know of nothing prejudicial to our interests. The partial closing down of the mills will restrict the output and, to some extent, delay the filling of orders. The situation will not continue long as at present and normal conditions will ere long be resumed."

Speaking of trade conditions, he reported that demand for all lines of paper was ahead of last year, but was not so active as paper men would like to see it. However, the general outlook was gradually improving.

The New Quebec Policy.

Asked to express his opinion of the announcement at the Gouin banquet, regarding the export of pulp-wood, he said:

"I am in thorough sympathy with the action on the part of the Quebec Government and am only sorry that it was not taken before. I do not believe in letting the resources of this country be carried away to another country to furnish employment to their workmen, and to provide their manufacturers with the sinews of war wherewith to make war on Canadian manufacturers. Our arrangement with the United States has been a jug-handled affair, in which we have been the givers and they the receivers, and it is time to bring the matter to an end. The pulp resources of the United States are practically exhausted and supplies have to be drawn from Canada. Their tariff policy has been one of petty annoyances, so far as Canada is concerned, and it will do them no harm to recognize the situation with respect to pulp-wood. It is simply a question of business: let them buy their paper here or come over and start mills and manufacture it in Canada."

"The meditated action of the Quebec Government, in prohibiting the export of pulp-wood from Crown Lands is a matter of no small satisfaction to us," said George McDougall, secretary-treasurer of the Jacques Cartier Pulp and Paper Company, to the Pulp & Paper Magazine, when interviewed. "Under the circumstances, it matters very little to us what

the United States does in the matter of duty. She has been imposing a duty of \$1.67 per ton against ground wood pulp and, owing to the fact that the United States practically makes the price of pulp here, Canadian exporters have had to pay this duty. Although there was talk of removing or reducing this duty, as well as that of \$2 per thousand feet on lumber, it does not now look as though this will be done, so that the action of the Government will be doubly welcome. As pulp-wood enters the United States free, it is only natural that the exports of this country are very large. This is to a very considerable extent, prejudicial to the ground pulp interests of Canada against which the United States maintains a tariff. The proposal to raise the stumpage dues is less important than the prohibition of the export of the pulp-wood grown on the Crown Lands or the timber limits. At present, the charge on this is 40 cents per cord on pulp-wood cut for domestic purposes and 65 cents on that cut for export to the United States. Because of this discrimination, the United States imposes a countervailing duty of 25 cents on the import of ground wood pulp from Canada, thus placing us at a disadvantage. I think the tax by the Quebec Government should be the same in both cases, so that the countervailing duty may be abolished. Contrary to the fears of many owners of private lands, the decision of the Government to prohibit the export of pulp-wood will place them in a very advantageous position. The great bulk of exports from Quebec is from Crown Lands and the prohibition of this export will restrict the United States to the purchase of wood grown on private lands, so that those who have this wood should be able to demand a very much greater price for it. The supplies of pulp-wood in the United States are now nearly exhausted, and already the mills of New York State draw 80 per cent. of their requirements from Canada. The Crown timber limits on the St. Maurice, at Batiscan and Assomption are in the hands of Americans who export the wood

over the border to be manufactured into pulp and paper. All this will be changed, now that the Government is about to prohibit the export of pulp-wood, and in future the pulp will be made here."



THE CONNECTION BETWEEN STRENGTH AND MOISTNESS OF PAPER.

Everybody knows that the amount of water in paper has a great influence upon its strength, the paper becoming weaker as its content of water increases, while at the same time the elasticity gets greater. The power of resisting repeated creasing increases up to a certain point with the percentage of water present. The amount of moisture in a paper depends for one thing on the condition of the atmosphere for the time being, and it has been agreed for the purposes of the researches tabulated overleaf that the normal moistness is to be considered that of paper in air containing 65 per cent. of the amount of moisture necessary to saturate it at the existing temperature. Hence all the samples tested were first kept for some hours in a room in which the air was maintained at that degree of saturation by artificial means. Experience has shown that a sojourn of about two hours is necessary and sufficient to enable the paper to adjust its water-content to the atmosphere, as is shown by its ceasing either to gain or to lose weight, unless the paper is brought into the room in an exceptionally dry state. In this case, the first portions of water in the air of the test-chamber are absorbed very slowly, and five or even six hours must be allowed before the paper is tested. In all cases, the equilibrium of the paper with the 65 per cent. atmosphere must be proved to have taken place by weighing. Before the equilibrium has been established, the paper will be losing or gaining weight. When it has been reached, the weight of the paper will remain constant. Very damp paper, too, must be

given more than two hours, but will be found to attain an unaltering weight sooner than very dry paper.

Recent tests show distinct differences in strength according as they were exposed to the standard atmosphere for two or six hours. In all three the longer exposure lessened the tensile strength, but at the same time it increased the extensibility and the ability to resist repeated folding. The papers exposed for twenty-four hours before testing showed but slight changes in tensile strength, changes doubtless quite independent of the degree of moistness of the paper. The moisture percentages show that in nearly all cases an exposure of two hours would have been insufficient to enable the paper to absorb its full quantum of water.



STAINS ON HEMP-MADE PAPER.

A firm of printers found that some white hemp paper, faultless when delivered, showed yellow stains after having been in stock for a few months. It was supposed at first that the marks were due to mould, but there was no mouldy smell about the paper, and papers not made from hemp which had been stocked in the same room for longer periods were free from stains. Investigation finally proved that the stains were iron stains, invisible until they had been oxidized by the air. The paper being closely folded up, air penetrates into the interior of the mass with some slowness, so that a considerable time elapses before the marks, originally consisting of colorless ferrous salts, undergo sufficient oxidation to show distinctly the yellow tinge due to small quantities of the hydrated sesquioxide of iron. The stains, or rather the spots which afterwards developed into stains, were evidently due to some part of the wire, as they occurred at regular intervals over a very great length of paper. One of the morals of this untoward occurrence is not to stock paper too long before using it for printing purposes.

JONQUIERE PULP COMPANY

This company stands with the most progressive paper manufacturing corporations doing business in Canada today, as a short synopsis of its history will show.

Incorporated in 1899, the first years were devoted to the manufacture of groundwood pulp only, the mill consist-

To further increase their capacity, this company decided to construct in close proximity to their mill, an electric power plant, thereby obtaining 700 horse-power. This necessitated the building of a concrete steel dam 35 feet high by 160 feet long. The water-wheels, generators, etc., are of the latest type; this new



Jonquiere Pulp Company's Mill, Jonquieres, Que.

ing of four grinders. During 1902, it became necessary to add 2 grinders. About this time, the directorate was studying the cardboard situation with the result that in 1903, a board machine, turning out a strictly high grade article,

plant has been in operation for some five months now, and is giving every satisfaction.

It is the intention of The Jonquiere Pulp Company to further add to their paper mill and it will during the present



Another View of Jonquiere Pulp Mill.

was added; the colored boards, wood-boards, tags and patent coated found ready purchasers in Canada and England.

In the spring of 1907, a sulphite mill was put into operation with a capacity of 12 tons dry per diem, the greater portion of which is used in the manufacture of cardboard.

year, install a machine for the manufacture of envelope manillas, etc.

Taking into consideration the fact that the Jonquiere Pulp Company possess upwards of 350 square miles of rich timber limits, it will be at once seen they are secure as far as wood supply is concerned.

The company furnishes electrical

energy to the municipality as well as electric light to the inhabitants of the village.

William Price, M.P. for Quebec West, probably the largest lumber manufacturer of the Province of Quebec is president and takes a very lively interest in the company's welfare.

The company is under the management of Oswald A. Porritt, who for the past twenty years has been intimately connected with the pulp and paper industry.



CONCRETE FOR MILL CONSTRUCTION.

It is time that the position of concrete in the field of building construction should be clearly recognized. Like most good and relatively new things, concrete was at first embraced as a superior substitute for almost everything built of wood or brick, but sober consideration in the light of experience shows that it, too, has its limits, although they are by no means as great as some would have us suppose. It has already proved itself such a valuable addition to the building arts as to necessitate its consideration under all practical conditions.

First of all the selection of concrete as a building material must be based on its ultimate efficiency. It is clearly recognized that a well-built concrete mill will usually cost from 10 to 15 per cent. more than one of ordinary mill construction which is capable of supporting the same loads on floors and columns. Of course where the material and labor entering into concrete are exceptionally cheap, and where on the other hand the cost of heavy lumber and brick are exceptionally high, the concrete building may prove the cheaper. This condition is, however, so rare that general statements to the effect that a concrete building is cheaper than an equivalent brick building with wooden floors should, as a rule, be discounted, or at least should be accepted only after careful investigation.

Not upon the basis of its first cost, but upon its endurance, its low maintenance charges, its fireproof features, and the rapidity of its erection, should the decision in favor of concrete be made. That these factors outweigh the slight excess of cost in the minds of progressive manufacturers is evidenced in the increasing use of reinforced concrete for manufacturing buildings. It was early objected that in the case of such buildings it would be difficult to attach shafting to the ceilings or machinery to the floors, and that the skeleton pier and window construction would add materially to the cost of heating in northern climates. Experience has shown these objections to be more imaginary than real. As an offset to the slight and usually immaterial increased cost of heating there will be a greater amount of daylight and decreased requirements in the way of artificial lighting.

It is a simple matter to provide in the construction for the easy attachment of shafting to walls or ceilings, and for adjustment thereon. Although there may be a little more difficulty in attaching machines to the concrete than to the wooden floor, it should be recognized that this process is seldom repeated and that a machine once set generally remains there.—M. C. Tuttle in Paper Trade Journal.



BRITISH MARKETS.

London, May 21.

Mechanical Pulp.—The World's Paper Trade Review reports that although British buyers show a disinclination to do business in anticipation of more favorable prices, it appears from Christiania advices that sellers maintain a firm attitude, and that quotations are not likely to show any weakness during the remainder of the year. It is pointed out that the winter has been a severe one as regards production both in Norway and Sweden, and the summer outlook for water is by no means favor-

able. With an improvement in the paper trade, and a greater call for mechanical, a scarcity is likely to be experienced, unless Canada is in a position to fill any deficiency.

Chemical Pulp.—The unsatisfactory condition of the chemical wood pulp industry points to the necessity of an early curtailment in production; otherwise it will be a long time before an equilibrium can be established between demand and supply.

Esparto.—The market continues slow, owing to the disparity between buyers' and sellers' ideas of future value.

Rags.—Trade, although a little better, is far from brisk, but there is enough extra demand to make prices, excepting canvas and ropes, firmer. The demand for foreign rags is still limited.

Chemicals.—Market steady. Quotations: Ammonia alkali, 58 per cent., £4 10s. f.o.b. Liverpool; bleaching powder (soft wood), £4 5s., f.o.r.; caustic soda, 76-77 per cent., £11 f.o.b. Liverpool; salt cake, £2 2s. 6d. f.o.r.; soda crystals, £2 17s. 6d. f.o.b. Tyne; and recovered sulphur, £5. Blanc fixe and sulphate of alumina unchanged.



SCANDINAVIAN MARKETS.

The pulp trade recently has been "uncertain," though there is now a brighter feeling. Mechanical is practically not to be had for prompt nor summer deliveries, and for future sellers have very decided ideas as to values. In sulphite sellers take up a reserved attitude for deliveries over next year and further on. Current business is, however, going on—especially with old, long continued connections desiring particular brands, and is closed at remunerative prices. For present deliveries on running contracts there is nevertheless much to be desired as regards "taking out," and this is felt most by mills making easy bleaching

sulphite. Sulphate remains unchanged for strong qualities, of which the supply is becoming limited for prompt deliveries. There is a fair demand for easy bleaching sulphate, but sellers and buyers' ideas as to prices are rather apart.



PAPER STOCK MARKET.

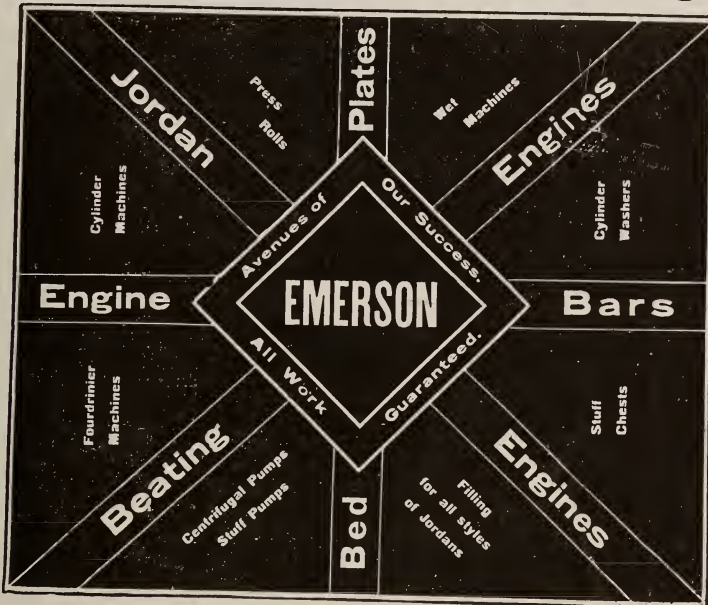
Montreal, June 5th, 1909.

The rag and paper stock trade is in much the same condition as the paper trade. The paper mills are operating more or less freely, although it is thought they are manufacturing considerable quantities which are going into stock. However, this is of no consequence to dealers in rag and paper stock so long as they dispose of their goods to the mills. They report a moderate and gradually improving trade, but they, apparently, do not look for any considerable activity for a long time yet.

Prices of graded stock are as follows, basis Montreal:

	Per 100 lbs.
Shirt cuttings—	
White	\$4 50 to \$5 00
Unbleached cottons . . .	4 25 to 4 75
Light print cuttings . . .	3 00 to 3 50
Shoe bag cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 30 to 0 40
Roofing stock—	
No. 1 satinettes	0 80 to 0 85
No. 2 satinettes	0 50 to 0 55
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25

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MANUFACTURE OF PAPER.*

This is an elementary text-book, giving an outline of the various stages in the making of paper and showing some of the many improvements made during recent years. Its tendency is to show how inter-dependent upon one another are the functions of the engineer and the chemist in the paper-making industry. The skill of both classes is essential to progress and the best commercial success. The book opens with a historical notice of the origin and early manufacture of paper, which reads as interestingly as a romance. An idea of the scope of the text-book may be obtained from the various chief headings: Cellulose and Paper-making Fibres; Manufacturer of Paper from Rags; Electrolytic Bleaching; Sizing; Watermarks; Cotton and Linen Fibres; Esparto and Straw; Manufacture of Mechanical and Other Pulp; Wood Pulp Papers; Brown Papers and Boards; Special Kinds of Paper; Chemicals Used in Paper-making; Process of Beating; Dyeing and Coloring of Pulp; Paper Mill Machinery; Deterioration of Paper; Bibliography. There is a full assortment of illustrations.

*The Manufacture of Paper, by R. W. Sindall, F.C.S., Consulting Chemist to the Wood Pulp and Paper Trades, Lecturer on Paper-making, etc. Published by Archibald Constable & Company, Limited, London, Eng., and The Copp Clark Company, Limited, Toronto. Price, \$1.80.

INFLUENCE OF SIZING ON DURABILITY OF PAPER.

At a recent meeting of the Swedish Chemical Society the question of the influence of sizing upon the durability of paper was discussed. The proceedings included an exhibition of paper testing appliances and of reproductions of paper fibres by Herr Roos, director of the material testing section of the Stockholm Technical High School. In the course of the subsequent discussion Director Bosaüs urged that rosin sizing was inferior to but cheaper than animal sizing, and was, therefore, coming more and more into use. He confirmed the statement made by another member to the effect that paper with animal sizing was more absorbent of ink than that with rosin sizing. Herr Roos reported that the only thing the testing section had so far been able to do was to test all the samples received for that purpose. Other speakers recommended a close investigation of the subject by that authority.



—We regret to learn of the death of Jean Freese, a well-known New York importer of pulp, which occurred in East Orange through a complication of diseases. The business has been incorporated as the Jean Freese Company, with Jacob Siebert manager and A. W. Freese secretary and treasurer.

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WANTED a second-hand, 4 cylinder Paper Machine, 80 inches wide, with press rolls attached, together with one set of dryers of not less than 25 cylinders, 36 inches in diameter, with winding machinery attached thereto. Parties having a Paper Machine of these dimensions for sale, may send a full and complete description of the same, stating in what condition it is, also price asked, to the ASBESTOS SHINGLE, SLATE & SHEATHING CO., Ambler, Pa., U.S.A.

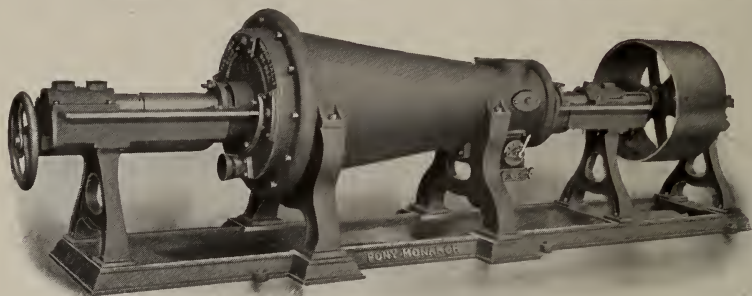
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WANTED BY SWEDE.

Swedish gentleman is open for engagement in Canadian mill. Experienced in Swedish processes of pulp and paper-making, and has worked on Kraft papers. Understands sulphate method and recovery of waste from sawmills for pulp purposes. Is capable of constructing sulphate pulp mill for bad wood, wastes, etc. Address Box 10, care "Pulp and Paper Magazine," Toronto, Canada.

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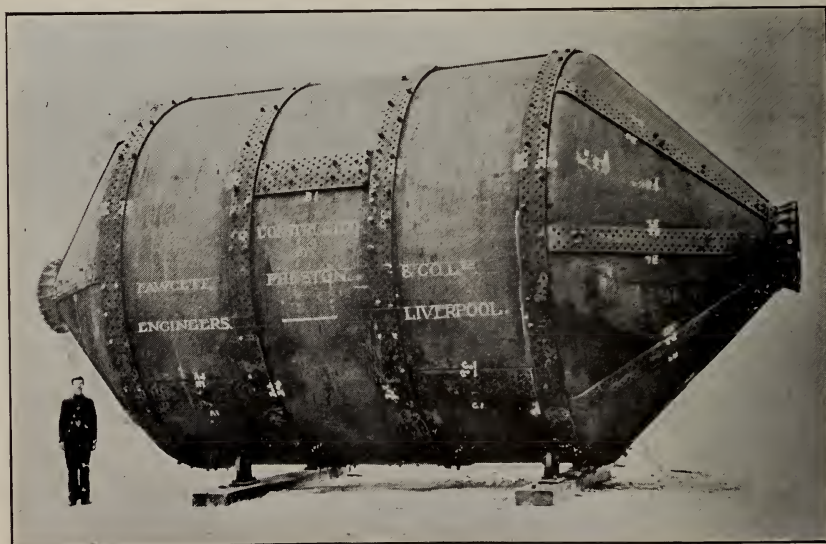
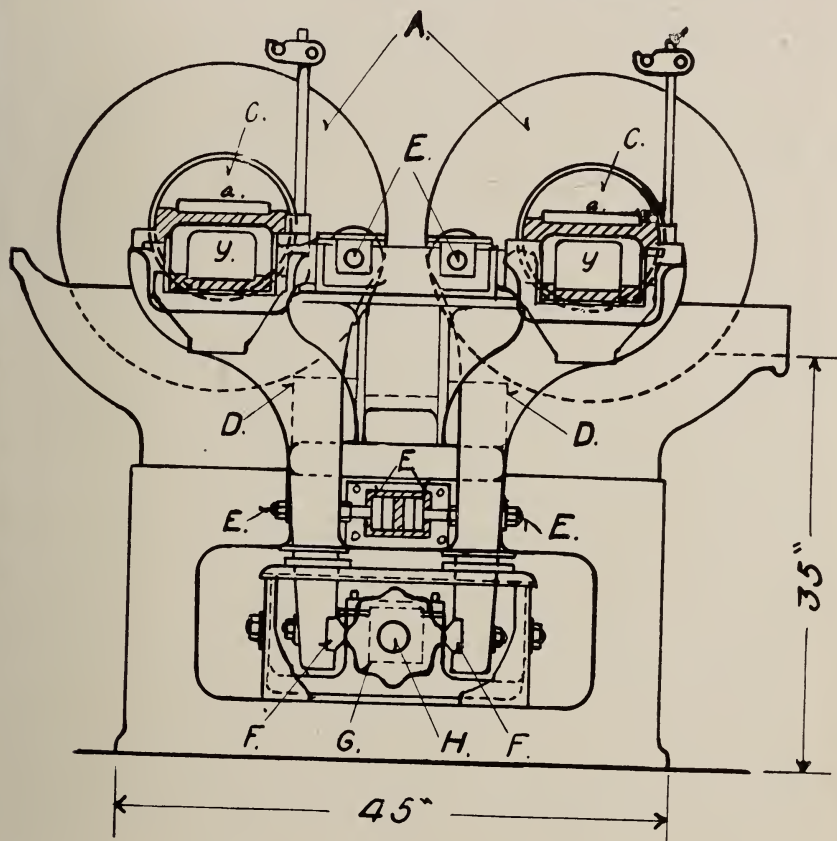


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Has the following distinct advantages over all other types of screens for screening paper stock. Low initial cost. Very low cost of maintenance, there being practically no maintenance cost except for oil. No attendance is necessary. The screen is entirely automatic in operation. Very small amount of power is required. A single cylinder screen will handle from twelve to thirteen tons of stock per twenty-four hours, and requires about one horse power. A double cylinder screen will handle twenty tons of stock per twenty-four hours, and requires from $1\frac{1}{2}$ to 2 horse power. A very high quality of screened stock is obtained and the output is absolutely uniform. This screen has practically replaced all other types of screens for screen paper stock in Europe, where over 4,000 are now in use.

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THE MARKETS.

Toronto, June 5, 1909.

A more buoyant feeling prevails in paper circles after the somewhat disappointing turnover in April. However, even in that month, business was so much better than at the same time last year that comparatively few complaints are heard. Most of what discouragement there is in the trade comes, not from the volume of business transacted, which in most cases seems to be quite satisfactory but in the irregularity and cutting of prices in many quarters, which is really unwarranted by the conditions. A little more backbone shown by some of the smaller mills would work to the benefit of all, themselves included. A great help to the feeling of optimism that now begins to prevail is in the excellent growing weather of the past two weeks, which has brought forward the crops both in Eastern and Western Canada in great shape and will do much to offset the backwardness indicated in the month of May. This, together with the great volume of immigration into the Western provinces, largely by American farmers, is bound to have a direct and good effect on all business in this country. Quotations for sheet news range around \$2.50 in carloads and from that to \$3 for smaller lots. Roll news is from \$2 to \$2.25, though this of course is supplied mainly under contract. Owing to the unsettled condition of the United States market, shipments to that country have been curtailed, resulting in the throwing of a larger quantity of extra stock on the home market, which is only barely in a position to take it. Bags continue to sell at the recently reduced price, though there is a feeling that they should advance. Grey brown sells at \$2.50, red brown at \$2.75, No. 1 Manila and fibre at \$3.50, No. 2 Manila at \$3.25. The mills are making larger quantities of ground wood, though as, under the

conditions prevailing in the American market there is but little demand, they are having to pile it for the present. The price most quoted ranges around \$15 to \$16 in Canada or \$22 to \$23 delivered at mills in United States. Sulphite remains about as before at \$36 to \$40 at mill.

* * *

Montreal, June 4th, 1909.

The trade situation shows but little alteration this month in pulp and paper circles. The marked improvement which was anticipated and which may have been to some extent felt, a few months ago, is hardly apparent any longer. Instead, one pulp industry reported a very dull trade, another reporting a duller demand than has been experienced for many years past,—worse, in fact, than a year ago. Some of the pulp mills, fortunately, have sold their output for months ahead at prices which would be impossible to obtain at the present time. Even in these cases, the purchasers are not requesting the goods to be forwarded, although the mills are going ahead manufacturing as fast as they can. In fact, all the mills are working full time, so far as can be learned. The supply of water is now liberal and there is apparently as much raw material as can be used, so that the mills must take advantage of the favorable manufacturing conditions even though the output is not sold. Something the same state of affairs exists in the paper mills. Most of them are manufacturing largely, though sales are not so good as was hoped for. It is said that there would be no trouble in purchasing all the pulp needed at \$15 per ton, though some mills are working on orders taken at \$1 or \$2 more. The uncertainty of the United States tariff is having a bad effect upon trade. This feature will shortly be removed, but another uncertainty will be introduced by the alteration in the policy of the Quebec Government, full particulars of which appear in this issue.

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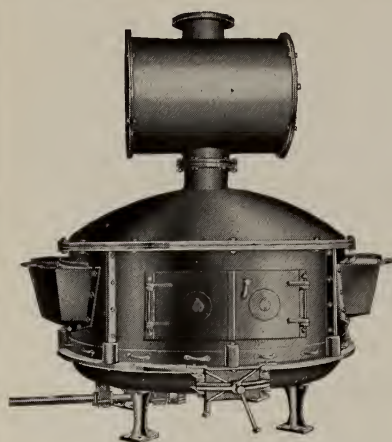
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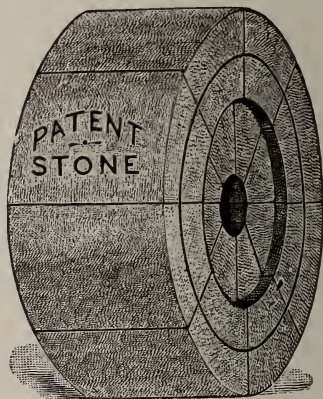
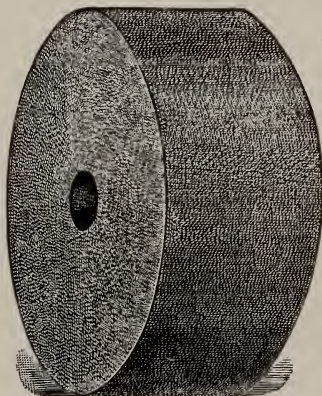
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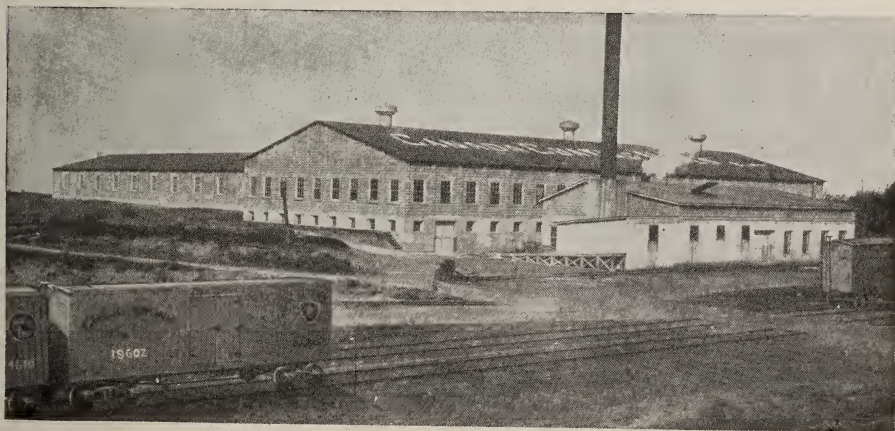
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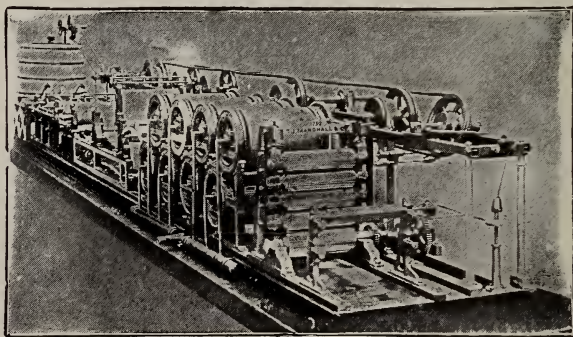
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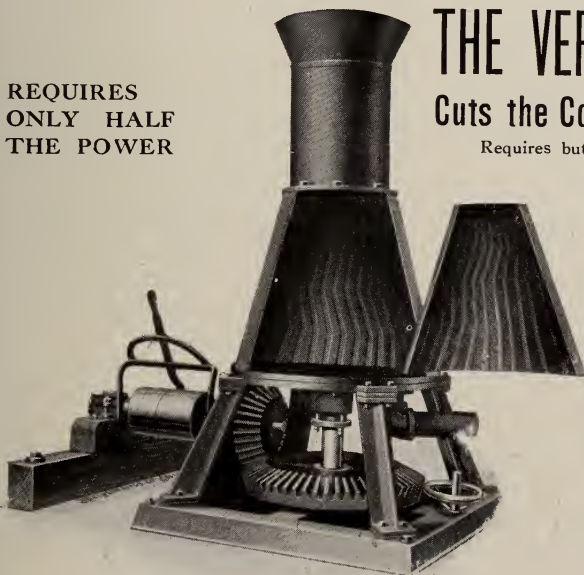
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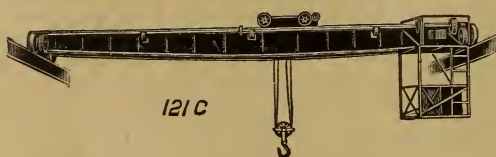
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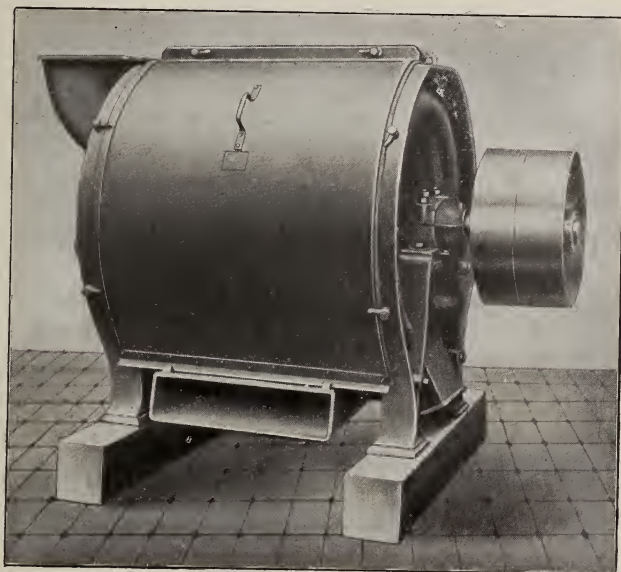
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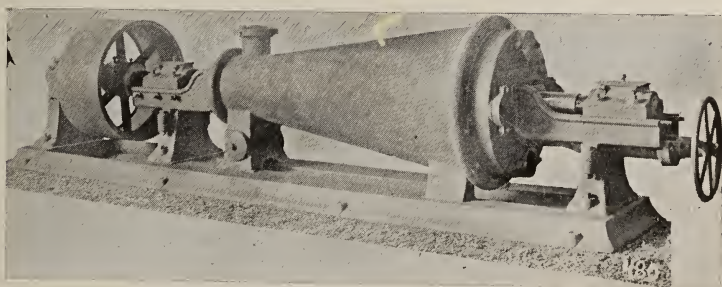
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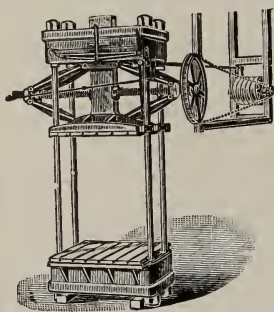
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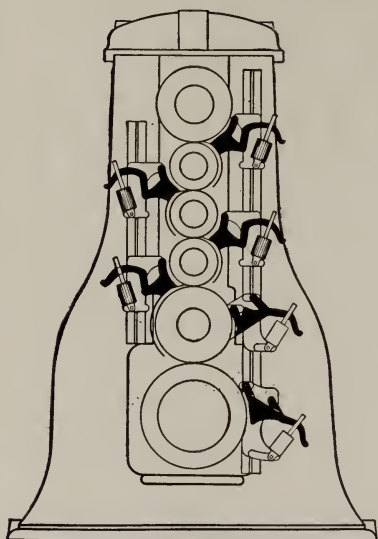
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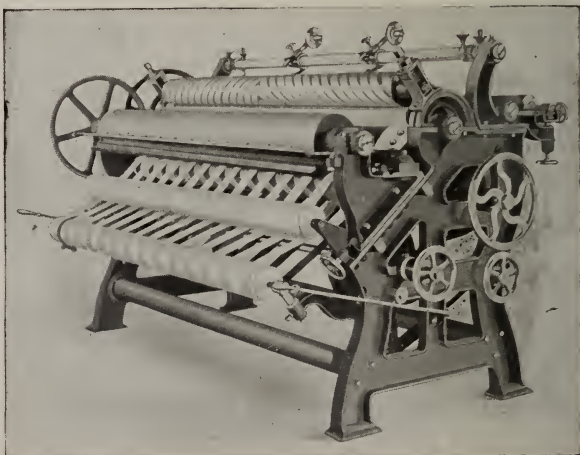


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The Pneumatic Save-All, of which several hundred installations have now been made in Canada and the United States, positively saves up to (and over) 90% of all waste. It does this automatically and with an expense of only a few cents per ton of (air-dry) stock reclaimed for power and maintenance. The fibre which it reclaims is delivered in perfect condition for immediate use or for storage, being absolutely as good as it was at first.

We believe there is no other device known by which it is practicable to save so much waste so cheaply, or in such good condition.

Perhaps the following facts will make this claim seem just. For example, when a revolving cylinder mold is used, as usual, in a pulp-thickener or "decker" to save waste, a wire cloth of relatively coarse mesh has to be used—commonly No. 60. The pulp is couched on this screen and removed by a scraper or doctor blade. Under these conditions much of the finer fibre passes through with the water, some is rubbed through by the couch roll and some is forced through by the scraper. It is well known that half the fibre is often lost in this way, so that a saving of only 50%, or even less, of the waste may be effected.

In our Pneumatic Save-All we use a revolving cylinder mold, but instead of a couch we employ Pneumatic suction from a blower to draw the waste water through the screen, leaving all the fibre (that is, up to 90% or more of it) in a film on the outside. This is absolutely true, and can be proved to you. The reasons are these: we use a very fine covering on the cylinder because we use nothing which could rub or scrape it and so wear it out; none of the fibre is rubbed or forced through the screen, for the reasons stated (the fine screen and the absence of scraping or rubbing parts); all the waste water can be thus treated, because the Pneumatic action of our Save-All gives enormous capacity and several hundred thousand gallons of waste water a day can be flowed through it.

The diagram will help to make these points clear.

As the reclaimed fibre collects on the revolving cylinder mold, it is first slightly compressed by suction. It then comes under the action of an air-blast blowing from within the cylinder at a fixed point and is thus lifted off from the wire and allowed to flow down a chute into a receiving pipe or tank. This action is entirely automatic and continuous. The screen does not foul readily because the fibre, instead of being rubbed into it, is blown off by a blast of air from within, while a shower pipe continually cleanses the surface at the point where the fibre drops on to the chute.

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Cross-sectional diagram of Pneumatic Save-All, showing waste water flowing into tank, and being drawn by suction into the cylinder. The fibre is shown collecting upon the cylinder, where it is held by suction until it encounters a blast of air, blowing from a valve connected to blower, not shown in diagram, which lifts it from the screen and allows it to flow down a deflector. This deflector does not touch the screen. Shower pipe, under deflector, throws a spray of water upon the cylinder just after the pulp is lifted off by air.

The amount and value of pulp thus reclaimed from water that has been previously flowing to waste cannot be appreciated until you have the actual certified facts before you. We have a laboratory outfit to receive, test and report upon all samples of waste submitted to us. All pulp and paper manufacturers are invited to send such samples to us and receive in return (free) our report on the waste with a definite statement of the annual saving that we could effect for them with this machine. There are many instances where the machine pays for itself and all costs of installation and operation for a year within the first few weeks of its operation. It requires only five horse-power and calls for only occasional inspection.

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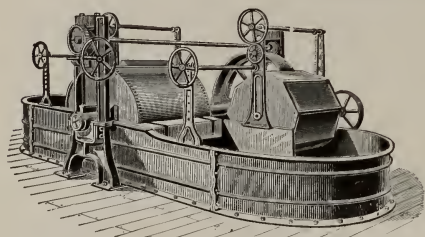
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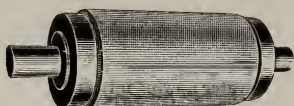
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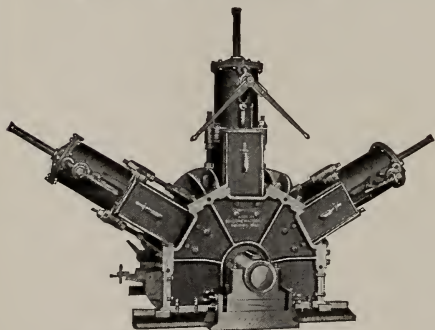
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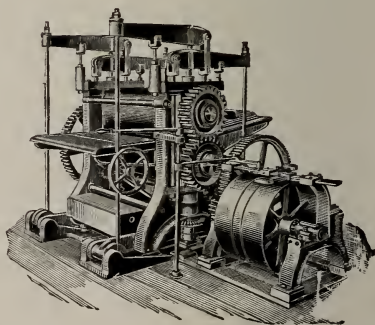
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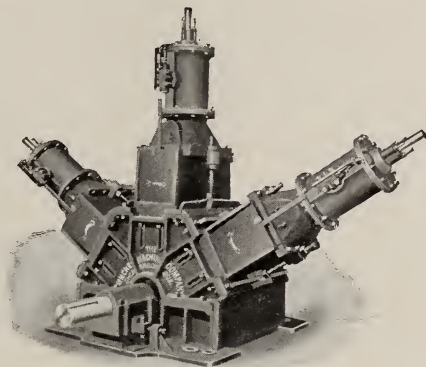
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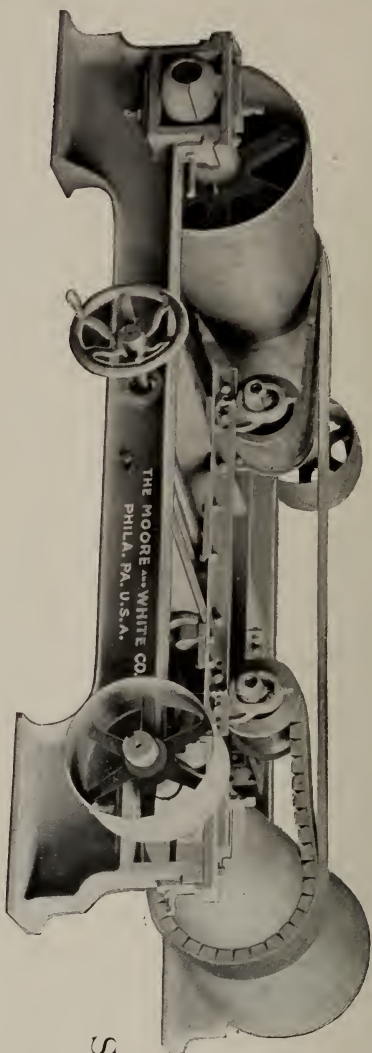
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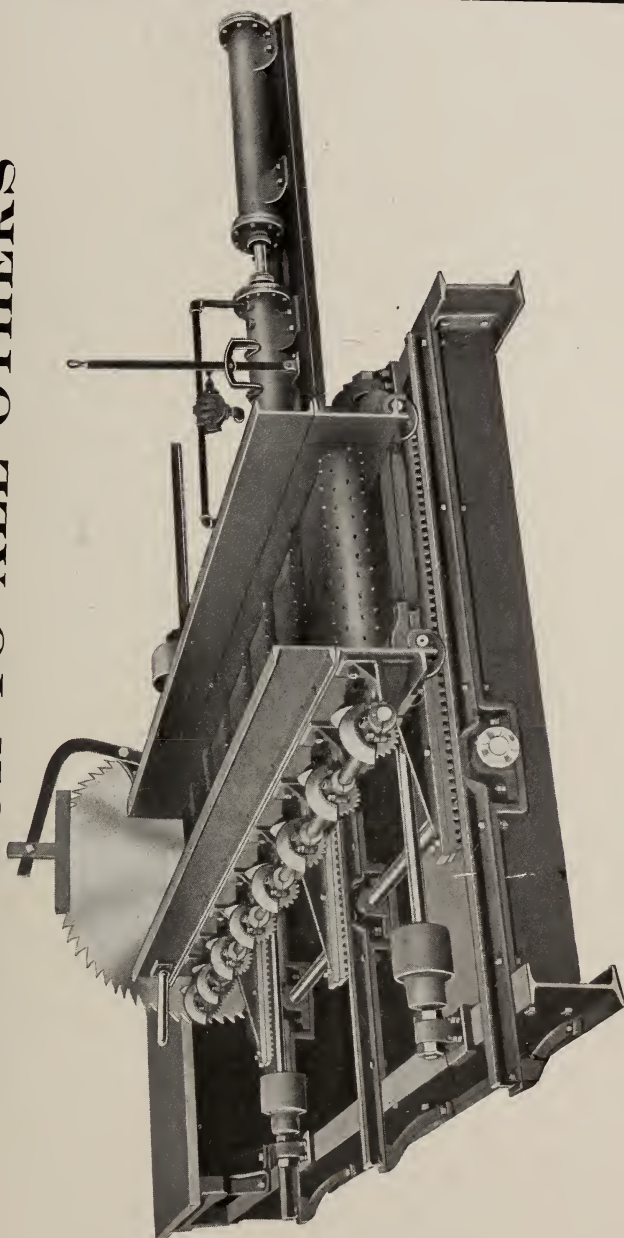
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 7.

TORONTO, JULY, 1909.

{ \$1. A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

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CANADA AND UNITED STATES TARIFF.

The tangle regarding the tariff to be imposed by the United States on Canadian pulp and paper seems to become more ravelled. The Congress Committee proposed several varying measures and then took them back; and the Senate Committee is following suit. The feeling of Canadians generally is that it is of no use to worry ourselves too much as to what the duties will be; the Americans themselves being just as much in the dark at present as we are ourselves. As to any tariff of a retaliatory nature being levied as a counterbalance to recently announced legislation in Quebec Province the case is well put by a well-

known Canadian paper manufacturer who inverted the usual biblical quotation by saying that Canada smites Uncle Sam on one cheek and the latter turns his other cheek to be smitten by himself. In dealing with pulp-wood in the way that Ontario and Quebec are doing Canadians have no wish to do any "smiting." It is simply a question of business interest and self-preservation.

The latest news from Washington is to the effect that the Senate Committee has revised its print paper and wood pulp schedules in accordance with amendments suggested by Senator Brown, of Nebraska.

The first of these amendments was a proposed duty on chemical wood pulp, unbleached, of one-sixth of one cent per pound, dry weight; bleached, one-fourth of one cent per pound, dry weight. Mechanically ground wood pulp shall be admitted free of duty, provided that if the President shall ascertain and make proclamation to the effect that any country, dependency, province or any subdivision thereof, has unduly discriminated against the United States by the imposition of an export duty or other export charge of any kind whatsoever upon any pulp-wood, wood pulp, or printing paper exported into the United States, or has forbidden or unfairly restricted the exportation thereof in any way, either

directly or indirectly, thereupon and thereafter there shall be imposed upon all mechanically ground wood pulp a duty of one-twelfth of one per cent. per pound, dry weight; an additional duty upon chemical wood pulp, unbleached, of one-sixth of one cent per pound, dry weight; and upon chemical wood pulp, bleached, of one-fourth of one cent. per pound, dry weight, when imported from such country, dependency, province or any sub-division thereof into the United States.

The Dingley tariff on mechanically ground pulp is one-twelfth of a cent a pound, dry weight.

The second amendment provides that if the President shall ascertain and make proclamation to that effect that any country, dependency, province or any sub-division thereof, has unduly discriminated against the United States by the imposition of an export duty or other export charge of any kind whatsoever upon any pulp-wood, wood pulp, or printing paper exported into the United States, or has forbidden or unfairly restricted the exportation thereof into the United States in any way, thereupon and thereafter there shall be imposed upon all printing paper valued at three cents per pound or less an additional duty equal to the rate imposed by this section upon such paper when imported from such country dependency, province or any sub-division thereof into the United States.

Under these amendments wood pulp would be admitted free, but that in case of discrimination on the part of the Dominion of Canada or any of its provinces, upon the proclamation of the president a duty could be applied.

Senator Aldrich later made an additional provision to the effect that in case any such country, dependency, province

or sub-division thereof shall forbid directly or indirectly the exportation (to the United States) of any wood pulp, logs or wood for use in the manufacture of wood pulp (and the President shall be of the opinion that such prohibition unduly discriminates against the United States and shall issue a proclamation to that effect thereupon and thereafter) an additional duty equal to the rates of duty imposed by this paragraph upon wood pulp shall be imposed on any wood pulp imported from such country or dependency.

The publishers represented by John Norris are said to be jubilant over the results of their representations to the Tariff Committee, although it is a little difficult to see why they should be so. They would be still more jubilant doubtless if they could induce, as they are trying to do, the committee to depress the duty on news to \$2 per ton. Heretofore it has been \$6, while the Committee seems disposed to compromise on \$4. The paper-makers of the United States are worried and point out that \$6 is only barely enough to equalize the difference between the cost of production in that country and Canada. It is true that attempts have been made to prove that paper can be made at a lower cost in the United States than in Canada. But, as Mr. Hastings, president of the American Paper and Pulp Association, points out, this figuring of comparative costs has been confined mainly to the actual manufacturing processes and has not taken account of the greater cheapness of wood in Canada, which allowing for transportation is an average of \$4 per cord less than in the United States or a difference on a ton of paper of about \$6 in favor of Canada. All the comparisons between the costs in the two countries, he points

out, have been made on a basis of particularly expensive periods of pulp-wood in Canada and normal or low-price periods in the United States, which is manifestly misleading.

An interesting report that is going around, on what kind of authority we do not know, is to the effect that the United States Committee favor the idea of allowing pulp made by American citizens in Canadian mills to come in free of any surtax. It is stated that the Backus-Brooks Company, which is establishing pulp mills at Fort Frances, has already been assured that such an understanding will be reached.

It is evident that the American paper manufacturers do not take much stock in the idea that paper costs more to produce in Canada than in their own country. As a sign of the times it is stated that, should the proposed duty of \$2 per ton become law, the International Paper Company will remove at least 50 per cent. of their capacity to this side of the line and that they would still save enough in working expenses to make the payment of this duty a profitable transaction.



QUEBEC LIMIT HOLDERS.

As we emphatically stated in last month's issue Premier Gouin, of Quebec, is to be congratulated on his recently announced public spirited policy of prohibiting the export of pulp-wood from Crown Lands in that Province. He showed discernment in seeing where the true interests of his country lay, and praiseworthy firmness and decisiveness in taking the action he did so soon after see-

ing it. But it should be quite plainly understood that this action in itself does not go very far, unless it be followed up by great firmness on the part of the Government in the granting of lands for settlement purposes. In recent years the quantity of pulp-wood shipped from Quebec Province has amounted to only about 15 per cent., the remainder going from private lands, which mostly formerly belonged to the Crown, but which were granted to farmers on the plea of settlement. The way this has worked out has proved an injustice to legitimate limit holders, because to make room for these settlers their timber areas have been drawn upon to furnish lots for settlers who then sold the timber on the same to rivals at a lower price, as they had no stumpage tax to pay. Legitimate limit holders have thus been placed at a disadvantage.

It is more than probable now that it is forbidden to ship to the United States pulp-wood cut from Crown Lands, that the pressure which in the past has been brought to bear on the Quebec Government to allocate lots out of existing licensed areas will become even much greater than it has been. In some districts, as we have said, this opening up of limits for settlement purposes has already acted as a great injustice to existing holders, more particularly when the "settlement" has been spurious and been undertaken for no other purpose than to obtain the timber on the tracts. With the product of Crown Lands altogether cut off it is to be feared that the speculators will use such means to obtain timber through this unfair method as the Government will find extremely difficult to resist unless they exercise the most extraordinary care and firmness.

Those said to be responsible for the spurious settlement, or in other words, the timber speculators, have from time to time set afloat not disinterested reports that the limit holders first denude land of all merchantable timber before it passes in the shape of lots into the hands of settlers, and that they boycott the latter by refusing to buy timber from them. These charges are not borne out, however, by a recently issued report of the Minister of Lands and Forests for the Province of Quebec. According to this the Chicoutimi Pulp Company in 1907-08 bought from the owners of lots 402,000 feet of timber more than the cutting on their own limits of 4,452,000 feet; Price Bros., who cut 12,000,000 feet, bought from lot owners 6,000,000 feet; Atkinson, who cut 1,000,000, purchased 10,000,000 from lot owners; the Metis Lumber Company and J. R. Booth & Company bought from these as much as they cut on their whole limits, namely, 8,000,000 feet in the one case and 25,000,000 in the other. To twelve companies mentioned, the settlers sold 89,954,000 feet, or 43 per cent. of their total production. The report adds that in 1908 720,639 cords of pulp-wood were conveyed to the United States to be made into paper, of which lumber from the Crown Lands under license is represented in the above by a quantity of 147,159 cords only. These data are the pertinent answer that may be given to those who make it their mission to repeat everywhere among the public the allegation that when a settler buys a lot that has long been in a limit he cannot find enough timber for his buildings and for his other more pressing needs. Further evidence is afforded in the report of Mr. J. C. Langelier, on merchantable timber cut on lots by

settlers and sold by them to the Metis Company in 1907-08, amounting to 7,741,457 feet, and for which, he says, they must have obtained \$45,000 at the lowest estimate, and in his report on merchantable timber sold by settlers to license-holders in the lower Ottawa region, which amounted to 18,936,873 feet, board measure, 385 cords pulp-wood and 5,119 ties. This is not inclusive of the timber sold to owners of small mills and small dealers, which "equals at least the quantities mentioned above," the two together amounting to a sum of \$240,000, putting the value at the low figure of \$6 per 1,000 feet.



—Mr. and Mrs. C. S. Varcoe sailed on the "Celtic" June 5th, after a five weeks pleasure trip, having visited Washington, Philadelphia, New York, Boston, Detroit, Chicago, Niagara Falls, Springfield, Mass., East Liverpool and Trenton. Mr. and Mrs. Varcoe were the guests of the Paper-makers' Chemical Company, which firm acts as sole representatives in United States and Canada for Mr. Varcoe's firm, Wm. Varcoe & Sons, Stoke-on-Trent, Staffordshire, England. It will be interesting to the trade to know that the great grand-parent of the present Varcoes was the first clay producer to leave Cornwall to sell clay to the Staffordshire potteries, and into Scotland, traveling all the way by coach. This same enterprise is being shown by the present firm who enjoy a large and increasing trade throughout Europe, United States, Canada and South America. Clay for paper manufacture is of comparatively recent date and for many years was a great trade secret.

Mr. Varcoe was loud in his praise of American commercial hospitality and regretted his limited stay did not permit him to call upon the entire trade.

PULP AND PAPER NEWS

J. R. Booth, Ottawa, has, we are told, received a contract to supply the Montreal Star with news paper.

* * *

The "Ontario News" office, Belleville, Ont., owned by T. S. Carman & Son, was damaged by fire. Loss, \$2,000.

* * *

The Colonial Wood Products Company has now almost completed the installation of machinery in its new pulp mill at Thorold, Ont.

* * *

The Smart-Turner Machine Company, Limited, have supplied The F. R. Lalor Canning Company with one of their duplex pumps.

* * *

The John Taylor & Company, Toronto, have ordered a duplex pump from The Smart-Turner Machine Company, Limited, Hamilton, Ont.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, have supplied W. A. McGowan, Durham, Ont., with one of their centrifugal pumps.

* * *

After overcoming several difficulties due to low water, the drive of the St. George, N. B., Pulp and Paper Company has been got down to the main river.

* * *

The London Soap Company, London, have ordered from The Smart-Turner Machine Company, Limited, Hamilton, Ont., an independent jet condenser.

* * *

J. McNichol, formerly manager of the Montrose Paper Company, Thorold, has now become connected with the Georgetown Paper Mills.

* * *

O. L. Hicks, Humber Bay, has ordered a centrifugal pump from The Smart-Turner Machine Company, Limited, Hamilton, Ont.

* * *

Part of the famous Gillies limits along the line of the Temiskaming and Northern Ontario Railway was recently sold, realizing \$74,643, not a very large sum

considering the supposed wealth of minerals contained in the area.

* * * *

The Sheppard Lumber Company, Waubauskene, Ont., have ordered a duplex outside packed plunger pump with pot valves, from The Smart-Turner Machine Company, Limited, Hamilton, Ont.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, Ont., have installed one of their centrifugal pumps in the Hamilton Steel & Iron Company of the same place.

* * *

The Canadian Forestry Association will hold a special fall meeting in Regina, Sask., on September 3rd and 4th. Among the subjects to be discussed are the planting of trees for fuel and windbreaks in the West.

* * *

The Bagley and Sewall Company, Watertown, N.Y., has completed the shipment of three large machines to the Anglo-Newfoundland Development Company at Grand Falls, Newfoundland. Two of these have been erected.

* * *

The Peace River Trade and Navigation Company, Limited, Montreal, capital \$1,000,000, just incorporated, is authorized to engage in the pulp manufacturing business. The Peace and Athabaska River Valleys are estimated to contain millions of cords of spruce and poplar.

* * *

W. H. Rowley, president and general manager of the E. B. Eddy Company, Hull, Que., will represent the Ottawa Board of Trade at Sydney, Australia, next September, at the meeting of the Chambers of Commerce of the British Empire.

* * *

Disastrous fires raged last month in many parts of New Brunswick, especially in the central portion, where many settlers lost their homes, and along the north shore, where much valuable timber was destroyed. Damage was done also in Northern Quebec.

A by-law to give the Northumberland Pulp Company a fixed assessment of \$2,000 for ten years on their pulp mill, to be erected near Ranney Falls, to cost \$10,000, and employ 25 hands, was carried by the ratepayers of Seymour township by a majority of six.

* * *

The iron construction work over the feeding weir of the Lincoln Paper Mill on the N., St. C. & T. R. tracks has at last become almost a certainty. The Hamilton Bridge Company have the work in hand and have sent a large gang of men to the village for the putting up of the iron work.

* * *

At a meeting of the board of the Lake Superior Corporation, held in New York, the following officers were unanimously elected:—President, Charles D. Warren, Toronto; First Vice-President, J. Tattall Lea, Philadelphia; Second Vice-President, T. J. Drummond, Montreal; Third Vice-President, J. Frater Taylor.

* * *

R. H. Davis & Company, Limited, Yarmouth, N.S., have been granted a charter to carry on business as job printers, manufacturers of stationery and blank forms, publishers, etc., and to continue and extend the business now carried on by R. H. and O. L. Davis.

* * *

The Lincoln Paper Mills Company, Limited, Merriton, Ont., have given an order to the Bagley and Sewall Company, Watertown, N.Y., for a new 112-inch Fourdrinier machine, to be delivered early next fall. The company will make the best grades of manila and envelope papers. An electric drive will be installed.

* * *

A despatch from St. John states that there is a big demand at the present time for men to peel bark in the New Brunswick woods. The poplar used in the pulp mills all has to be peeled, and large crews are being sent in for this purpose. The pay is from \$20 to \$26 a month. From 500 to 600 men were sent to different operations from Bangor last week.

Hon. William T. Pipes, Commissioner of Lands for Nova Scotia, has completed arrangements under which Dr. Fernow, of the Toronto University Forestry Department, and four assistants will leave at the end of the present month for the Maritime Provinces. They will take two summers in preparing a forest map of Nova Scotia, doing the work county by county. They will be required to survey 1,500,000 acres.

* * *

✓ The firm of Edwin Crabtree & Sons, Limited, has been formed with a capital of \$199,000, and headquarters at Montreal, for the purpose of manufacturing and dealing in paper and pulp. It is composed of Edwin Crabtree, David Crabtree and Kay Crabtree, of Joliette, Que.; Walter Crabtree, Crabtree Mills, Joliette; Herbert Crabtree, Well River, Vt.; Ed. S. and Harold Crabtree, Montreal.

* * *

The steamer Akershus left Seven Islands a few days ago with a full cargo of 5,000 tons of Mechanical wood pulp from the new mill of the North Shore Power, Railroad & Navigation Co. at Clarke City. The mill is now running full capacity, and turning out about 250 tons of baled pulp daily. These two large steamers will be kept busy all season conveying cargoes of pulp to England.

* * *

The Don Valley Paper Company, Limited, Toronto, capital \$250,000, has been granted a charter by the Ontario Government. The incorporators are C. F. Ash, Norman and Wilfred Davies, James G. Worts, and Adam W. Ballantyne, all of Toronto. They will carry on in all branches the business of a paper dealer, buy, sell, make and deal in all kinds of paper envelopes, blank books, stationery paper, boxes, etc.

* * *

The large hydraulic dam at Fort Frances, Ont., on the Canadian side is nearing completion and there is every pros-

pect of the power obtained from the same being speedily utilized. Next year the erection of a large paper mill will be started, with two machines at the beginning. Later on machines for making wrapping paper and bags will be added, also some for making building paper, book paper, etc. In August contracts are to be given out to farmers for pulpwood to be delivered in January.

* * *

At the annual meeting of the Nepisiguit Lumber Company, Chatham, N.B., it was decided to increase the capital stock from \$100,000 to \$500,000. The company is composed of United States capitalists, R. W. Ellis, Springfield, Mass., being the president. The Nepisiguit company already held some valuable mill and lumber properties in Gloucester County, including the Stacey mill, and the object of increasing the capital stock is to make additional purchases. The Nepisiguit Lumber Company intend to erect new mills, and have in view also engaging in the pulp business.

* * *

A convention of representatives from different municipalities of Northumberland and Durham was held in Cobourg to discuss the reforestation of 14,000 acres of waste lands in the northern part of the counties. Dr. Fernow, Professor Zavitz, Thomas Southworth, president, and Jas. Lawler, secretary, Canadian Forestry Association, and Mr. Nixon dealt ably with the subject and gave a description of the system of reforestation in other places. Three resolutions emphasizing the great need of reforestation were passed, and committees were appointed to take the matter in hand and endeavor to further it, and a series of meetings was arranged for the fall.

* * *

William Stewart, engineer-in-charge of the machinery used by the Miramichi Pulp and Paper Company, Chatham, N.B., to haul their logs from the river up to the Barking mill, narrowly missed death the other day. He was standing near his engine when in some way his coat or jumper caught in the shaft of the

swiftly revolving wheel. He was whirled around twice, and then his clothing giving way he was hurled to the floor breaking an arm and a leg. All the men in the mill had left for the night and he was in a bad predicament. His first thought, however, was for the machinery. He managed to work his way to the engine room and was able to attract the attention of a passer by, who summoned assistance.

* * *

H. Vigeon, liquidator of the Montrose Paper Company, Limited, Thorold, Ont., announces that tenders will be received on the mill property and equipment, water-power and water wheels, valued at \$106,260; also on the finished and unfinished product of the mill, valued at \$20,819. Tenders will be received by George Kappele, the official referee, Home Life Building, Toronto, up to 4 p.m., July 14th. A marked cheque of the value of 10 per cent. of the tender must accompany the tender, which will be returned if the tender is not accepted. The successful tenderer must pay 25 per cent. of his tender within ten days and the balance in two equal payments in three and six months, respectively, with 6 per cent. interest. The mill is to be closed down at once.

* * *

J. B. Beveridge, formerly manager of one of the Canada Paper Company's mills at Windsor, Que., has been appointed managing director of the Western Canada Wood Pulp and Paper Company's mills now being built at Quatsino Sound, B.C. He was formerly connected with the Miramichi Pulp & Paper Company. This company has secured a water record on Marble Creek, Quatsino Sound, capable of developing 10,000 to 15,000 horse-power. The power is permanent the year round. The new plant of the concern, when completed, will have a capacity of 600 tons per week of news and wrapping paper. The plant will be under the building supervision of C. B. Pride, of Appleton, Wis., and this gentleman expects to have the pulp mill in operation by December next.

PAPER AS USED FOR ELECTRICAL INSULATION.*

By Clayton Beadle and Henry F. Stevens.

We have frequently had occasion to examine papers used for electrical insulation. These may be divided into two classes:—

(a) Paper used for insulation without impregnation.

(b) Paper used after impregnation with some dielectric.

The paper most in favor for class (b) especially is made, or reputed to be made, from manila. From point of view of the chemical nature of manila there seems to be no a priori reason for manila papers being exclusively used for this purpose, although they are generally specified in contracts. The fact, however, remains that papers of this class have been used for such purposes for upwards of twenty years, and possibly for thirty years; in fact, probably before chemical wood fibre came into use. Chemical wood fibre may, as far as we know, answer equally well, and we have proved that the best-prepared chemical wood fibre produces a paper as strong as manila, and that it certainly is capable of showing greater uniformity in texture, color, and general appearance. These are points of some importance in its favor.

Chemical wood has not been brought to a state of perfection until quite recent years. These cables insulated with well-prepared chemical wood pulp papers have, therefore, not stood the test of time like manila, but when they have been in use a sufficient length of time we fully anticipate that they will prove themselves equal to manila in lasting qualities and superior in point of texture, although there may be points of difference which will necessitate different handling.

The insulation qualities of paper are primarily dependent upon the amount of moisture present. The amount of moisture varies with atmospheric conditions, as well as with the nature of the fibre. Thus, the mean percentage of moisture in cotton paper may roughly be taken as 6.5 per cent.; jute, hemp and manila and chemical wood may be taken at 10 per cent.; mechanical wood perhaps 11 to 12 per cent. Change in atmospheric conditions may occasion a variation from these figures of 3 to 4 per cent. on either side of the mean. The whole of the moisture may be removed by exposure to 105° C., or in a desiccated atmosphere at ordinary temperatures.

Chemical wood papers are without doubt serviceable for the insulation of cables such as are used for post-office work, where the insulation is dependent upon the paper alone. In such cases the paper has to be dried in the first instance, and kept dried by hermetically sealing the cable with a lead sheathing. When such insulated cables have absorbed small quantities of moisture they are restored to a condition of dryness by pumping dry air through the mains.

Cellulose (notably cotton) deprived of moisture either by desiccating in dry, cool air or by heating, recovers its moisture in about sixty minutes on free exposure to the air. In doing so it rises in temperature. The curves showing the rate of absorption of moisture and the evolution of heat have been carefully recorded by Beadle and Dahl.**

As far as we know, the same phenomena are to be noted with other forms of fibrous cellulose, such as those used in the manufacture of ordinary cable papers. The phenomena of the evolution of heat due to absorption of atmospheric moisture by cellulose were independently

* Read at a meeting of the Verein der Zellstoff und Papier-Chemiker in London on May 27th.

** "Increase in Temperature of Cellulose on Absorption of Atmospheric Moisture."—"Chemical News," April 17th, 1896.

investigated by Prof. Orme Masson † some years after the first investigation above recorded. We are inclined to regard this evolution of heat as a physical rather than as a chemical manifestation.‡ It may be due to certain stresses and strains set up in individual fibres when deprived of moisture, which are revived on reabsorption of moisture, and the amount of heat liberated appears to equal the amount of heat necessary to vaporize the same amount of moisture. It may be an induced physical, rather than a chemical, phenomenon.

The chief importance of the question of absorption of moisture is, however, centred in its change in insulation qualities, or perhaps it would be more correct to describe it as change in conductivity. We find that when the insulation of paper or other forms of cellulose is investigated under varying degrees of atmospheric humidity, taking the case of a sample of pure cellulose film in air at 60° F. (= 15° C.)

Megohms per
cu. centimetre.

At 80 per cent. humidity it shows an insulation of.....	200
At 78 per cent. humidity it shows an insulation of....	300
At 75 per cent. humidity it shows an insulation of.....	600
At 74 per cent. humidity it shows an insulation of.....	700
At 73 per cent. humidity it shows an insulation of.....	800
At 72 per cent. humidity it shows an insulation of.....	900
At 71 per cent. humidity it shows an insulation of.....	1,000

† Orme Masson, F.R.S., "On the Wetting of Cotton by Water and Water Vapour."—Proceedings of the Royal Society, Vol. 74, 1904.

Orme Masson and E. S. Richards "On the Hygroscopic Action of Cotton."—Proceedings of the Royal Society A, Vol. 78, 1906.

‡ See also Beadle.—Journal of the Franklin Institute, August, 1894.

In another instance:—

At 85 per cent.	1,200
84 per cent.	1,400
83 per cent.	1,600
82 per cent.	1,800
81 per cent.	2,000
75 per cent.	3,700

Thus it will be seen that different forms of paper or cellulose do not show the same initial insulating figures, but they all show a marked improvement in insulation as the drying capacity of the air increases. But below about 70 per cent. saturation there is a rapid rise in the insulation until one approaches a nearly dried atmosphere, when insulation is extremely high, say, about 500,000 megohms per cubic centimetre. Hence, the importance of completely desiccating cable papers before impregnation with a dielectric.

Cellulose which shows an insulation of 750 megohms can be raised to 40,000 megohms by impregnating it with one-third of its weight of pitch. These both measured at 15° C., and in a fairly dry atmosphere.

In a dry and frosty climate, vulcanized fibre, which is made of cotton paper as a basis, shows over 12,000 megohms; under the same conditions a clear cellulose film has shown 63,000 megohms; the same film in damp and rainy weather falls to 200 megohms.

The unevenness of strength of machine-made paper, which distinguished it from the hand-made article, is a benefit for cable insulation. The strength of the machine-made paper is greatest when pulled in the direction of the web. When such paper is cut into narrow strips and lapped round a cable, it is of advantage to have the greatest strength in the direction of the strips, as this is the direction in which the pull is exerted. Elasticity or stretch are also of consequence. It is also important that the paper should retain considerable strength in its anhydrous condition, as this is the condition in which it is actually used.

We have proved that cable papers, after impregnation with rosin oil and other dielectrics, remain permanently in an anhydrous condition in the cable, and even when the sheathing is removed, provided that the paper is thoroughly impregnated with a material which does not absorb moisture, the paper remains anhydrous.

Those engaged in the paper trade will know that it is extremely difficult to produce a paper consisting wholly of manila, because it is difficult to get this material free from other fibres in the raw state in which it is utilized by the paper trade. Moreover, it is difficult to produce clean paper from such material. Furthermore, as has been pointed out to us by paper-makers, a stronger and cleaner paper might be produced from hemp. As far as we know, hemp is the most durable paper-making fibre, unless we go to a fibre like flax, which is out of the question from point of cost. Engineers specifying for cable papers, however, insist in specifying for pure manila paper. They also specify for "paper free from chlorine and other deleterious chemicals" without knowing what they mean. Paper in its finished state never contains free chlorine, although it is bound to contain traces of chlorides and sulphates, which, however, should be far too small to have influence on the insulation of an impregnated paper.

Freedom from pinholes is frequently specified in contracts for cable papers, and more is made of this point than need be, because, provided that the holes are very small, the impregnating material fills them up, and the lapping of the different layers of paper over one another and crossing one another negatives the possibility of any pin-holes from being continuous through the whole thickness. Pinholes are usually, in our opinion, produced by the suction at the vacuum boxes. Where papers are made of rope and such like materials, they are liable to contamination from materials, such as small particles of coke. Nothing is more difficult to

eliminate in the process of manufacture than such materials as coke. They float and become entangled in the fibres, and consequently cannot be separated by gravitation. Whereas the heavier and coarser grit can be easily separated on the sand-traps, sand-tables, etc.

We have had many specifications put before us when examining cable papers for contracts, but few of them are worth the paper they are written upon. Whilst in some respects they are unnecessarily exacting and arbitrary, in others they omit to specify important qualities.

We have instances of cable manufacturers stating that they find a considerable deficiency in the insulation of cable papers when the ash exceeds 2 or 3 per cent., and some say that an extra 1 per cent. of ash materially affects its insulating qualities. This statement must be accepted with some reserve in view of the numerous determinations of insulation made on our behalf on mixtures of cellulose impregnating material, minerals such as clay, which clearly show that a very large percentage of mineral matter may be incorporated with the impregnating material without impairing the insulation (i.e., resistance). In fact, some of the mixtures, as we hope hereafter to show, containing the higher percentage of mineral matter, show the highest insulating qualities. But electricians demand, not only paper yielding good insulating qualities from point of view of resistance after impregnation as well as good physical qualities generally; they also demand that it should be within certain limits as to its specific inductive capacity, and in this respect there is considerable difference between papers of different makes and compositions as well as with different forms of cellulose. In this connection our friend, Mr. Albert Campbell, of the National Physical Laboratory, has rendered valuable assistance in his researches.*

* "On the Electric Inductive Capacities of Dry Paper and of Solid Cellulose."—Proceedings of the Royal Society A, Vol. 78, 1906.

We wish to emphasize the fact that a great deal, perhaps the bulk, of paper is used **after** impregnation. The question of durability in such cases, therefore, must not be judged on the durability of the paper in its unimpregnated durability by materials with which it is condition. Cellulose is affected in its associated. One of the common materials for impregnation is rosin oil, containing a considerable percentage of rosin acids. This material, we should have expected to show up unfavorably, even when used on the best and most durable papers.

We carefully tested this point in the following manner: We stripped from cables papers impregnated with rosin oils. These were then sealed in black paper and afterwards hermetically sealed in bottles and placed in a bath at constant temperatures. Thus, to hasten the effect of deterioration some were placed at 174° F. ($= 79^{\circ}$ C.) for 18 days, and as a more drastic treatment 217° F. ($= 103^{\circ}$ C.) for 36 days. The former temperature is high, except in very hot places in factories, as in the neighborhood of steam pipes, as is sometimes met with; the latter is never experienced in practice, but used to see how paper of different compositions stand excessive treatment.

The above papers were then extracted by treatment with cold benzine until the rosin oil was completely removed, and tested for strength as against papers which had not been exposed to elevated temperatures. Provided that the temperature is within reasonable limits, there is no appearance of any deterioration on manila paper or paper containing mixtures of manila and wood pulp, and even if the temperature is raised to 100° C. for three weeks, still there is no sign whatever of deterioration so long as sealed from air. If, however, the paper contains perishable fibres, such as mechanical wood, esparto, straw, and too much jute, then there is a marked deterioration; but paper of all

compositions, as far as we know, when impregnated with rosin and rosin oils and exposed freely to the atmosphere at the more elevated temperatures, show some deterioration, even if made from manila, hemp, etc. The deterioration is very marked with papers composed of the more perishable fibres.

To sum up, therefore, we may put it that the durability of a cable paper is contingent upon its surroundings, and can only be properly ensured if it is completely isolated from the oxidizing influences of the atmosphere.

We have investigated a further point, namely, the solvent action of impregnating materials, such as rosin oil, upon the copper conductor and the lead sheathing. Some of the present cables, notably those of foreign manufacture, not only have the paper impregnated with the rosin oil, but all the interstices, even the interstices between the individual wires of the conductor, almost completely filled up with the impregnating substances, so that there is practically no air present. If from a portion of one of these cables the lead sheathing is removed and the wires laid bare for a few days, the rosin oil or other impregnating compound will be found to contain considerable quantities of copper as the result of the action of the compound upon the copper in the presence of air, and the paper in the neighborhood of the lead sheathing will be found to contain lead as well as traces of copper. The amount of lead present will depend upon the time of exposure to the air. We found that, taking similar cables immediately after the lead sheathing had been removed, and testing the papers and the impregnating material for copper and lead, that only traces of these substances are found, and in some cases none at all, even in cables that had been made for a considerable period.

It may be concluded, therefore, that the immunity of such dielectrics from

solvent action upon the metals can only be ensured by keeping the same out of all contact with the atmosphere.

It is quite possible that cable insulation will in course of time dispense with the use of paper altogether by substituting therefore compounds of cellulose, such as cellulose acetate.

In conclusion, we would merely say that a paper required for insulating purposes cannot necessarily be judged by physical tests as applied to paper in the ordinary way, as the conditions under which it exists in the cable are entirely different from those in which it exists in its raw state when exposed to ordinary atmospheric conditions.



PRICES OF WALL PAPER.

A movement is on foot among the wall paper manufacturers to change the present method of price charging for borders, which to-day are often sold at a price below cost of production. This cost is generally considerably more than that for hangings on account of the greater elaborateness of design and because of the smaller quantity made. Borders for foreign papers, except those from the United States, in which the method adopted is similar to that in Canada, are charged higher prices and now both the manufacturers and the dealers believe that the change would be desirable in their interests and not unfair to the consumer. S. S. Boxer, of the Watson Foster Company, Montreal, has made a series of tests, the result of which has convinced him that the price of borders should be on the average about three times that of the hangings to match them.



HISTORIC DISCOVERY AT MERRITTON MILL.

An interesting relic has been unearthed by workmen engaged in excavating for the tail-race of the new Lybster Mill at Merritton. The old structure was for

years used as a cotton mill, and was recently, it will be remembered, purchased by Welland Woodruff, to be used as an annex to the Lincoln Paper Mills. While digging for the new tail-race, the workmen came upon one of the locks of the original Welland Canal, the construction of which began in 1824 and was completed in 1829. The structure had in the course of 80 years become entirely submerged, and its very site was forgotten. The enclosing walls are of stone, the gates being of wood. Walls and gates when uncovered, were in a perfect condition. The stone work shows not the least sign of deterioration, and the gates, in which not a single nail was used, wooden bolts being used instead—are as sound as the day they were first used.

The size of the locks on the first canal is a matter of dispute, but, in 1842 the waterway was enlarged. Again in 1870 an enlargement was made, and in 1900 the canal was again increased in size and carrying capacity. The old gates are being carefully raised, and will be erected in the village park, where they will stand as a most historical souvenir, and a memento of the energy and enterprise of our forefathers.



ABOUT CORNSTALKS PAPER.

The following letter was addressed to the Toronto Star by John R. Barber, president of the Georgetown Paper Mills:

"Re your article of Saturday last, concerning the wonderful discovery by the United States Government experts at Washington that very good and very cheap paper could be made out of cornstalks, let me inform you that paper was made from cornstalks at the Georgetown Paper Mills over thirty-five years ago. At that time the mill was making print paper from straw, bought at \$6 per ton, and selling the product at 10 cents per pound. The process for working cornstalks and straw was the same then as now, and has not been materially improv-

ed upon since. Chemicals, however, are much cheaper, and a percentage of these are now recovered and used over again. Paper can be made to-day out of straw cheaper than from cornstalks in mostly every State of the Union, and paper from either of them would cost twice as much as you are now paying for your daily supply of news. No discovery or invention of man will increase the percentage of cellulose in a ton of straw or cornstalks, and not until pulp-wood is worth at least \$20 per cord will either of them become a factor in making paper suitable for printing. The best that the inventor can be expected to do now will be to keep down the advancing cost of printing paper. To you as a paper buyer, I would say, make your contract this year, and make it for as long a period as the paper-maker will give it to you. Printing paper is cheaper to-day than it will ever be again in the history of the paper trade. The cost will advance with the cost of lumber, and that lumber will continue to advance I don't think anyone is prepared to doubt.



SATINIZING.

A surface may be called perfectly polished if a pencil of light falling upon it is reflected without sensible loss or dispersion, says *Le Papier*. If the bundle of rays is broken up and the separate rays leave the surface after reflection in many different directions the impression given to the eye is that of a dull or rugged surface. Hence polishing consists in getting the whole of the surface as far as possible into the same mathematical plan, so that all parts of it will reflect light in the same way without scattering rays originally parallel.

When we apply these considerations to paper, we find that the method of making it depends on arranging the fibres in different planes, so that the surface consists of tiny hills and valleys, and is, therefore, far from being polished and smooth.

Calendering and satinizing consist simply in crushing down the elevations of the surface into the hollows so as to bring the whole of it into one plane. The satinizing is better or worse according as this is done more or less completely. Sizing is of powerful assistance in securing this levelness of surface, when an extremely fine powder is used that will fill up the hollows without adding to the elevations. Of late years the production of highly glazed papers has become a special industry.

It will be of interest to our readers if we consider briefly the conditions on which the production of a highly smooth paper surface depends, without reference to any sizing. The first condition is uniformity in texture. If the paper is unequally translucent (that is, possessing parts of closer texture alternating with parts where the fibres are more loosely compacted) no calendering will give a proper lustre. The heavier parts of the paper will take the pressure and protect the other portions to a great degree, however severe the compression may be. Hence the closer parts will be lusted more than the rest, and the most that can be done is to produce a kind of marbled effect. Much, then, depends on the paper leaving the drying cylinders with as uniform a texture as possible, and when paper is being made which has to be satinized afterwards, every care must be taken to ensure this uniformity. The pulp must be homogeneous above all, and the paper must be evenly pressed by the drying cylinders. The calender bowls must be perfectly clean, and polished as highly as cast-iron can be. During the satinizing of the paper they are kept clean by doctors. These should be of bronze, i.e., of somewhat softer metal than the rollers, and so unable to scratch them. The rollers must be carefully watched for any sign of rust or scratches. A grain of sand accidentally present may cause damage that can only be remedied by re-turning the cylinder in the lathe. In glazing paper on one side only the surface

opposed to the glazing cylinder must be perfectly uniform and just yielding enough to enable the pressure to force the projecting parts of the surface being lustrated to the other side of the paper. This condition is attained by using a cylinder covered with a woolen fabric very tightly rolled upon it. Care must be taken that the woolen surface is kept clean, and when the fabric loses its elasticity, as happens in time on account of the continual pressure, the cylinder must be re-covered.

In calendering it is of the utmost importance that the pressure is absolutely uniform over the whole width of the paper, i.e., that the distance between the rollers is the same over their entire length. Difference in wear in the bearings may make the pressure greater on one side than on the other, and the severe strain put upon these bearings is very apt to cause them to become untrue. When this inequality of pressure exists it soon reveals its presence by giving more lustre to one part of the paper than another.

Finally, the exact condition of the paper as regards moisture demands attention, whether it is to be satinized on one or both sides. A certain amount of water must be in the paper to enable it to yield to the pressure, but it is evident that the less there is, so long as the paper is supple enough, the better. No rule can be given, and the result will largely depend upon the accuracy with which a judgment as to the proper humidity of the paper is formed.



FORESTRY STUDENTS' CAMP.

Dr. Fernow, Dean of the School of Forestry of the University of Toronto, states that the site selected for the camp for practical work by the senior students this year is an excellent one, as there is a very interesting example

of how the forest in a primeval state plants itself. The site is a limit near Frank's Bay on Lake Nipissing. Here there is a thick stand of red pine which has never been burned over. The forest is about 175 years old, the ground having been burned over clean at that time, so that the red pine forest is of even age. The new growth, which has a stand of about 2,000 young trees to the acre, is all white pine. The students will thus, in addition to their work of surveying and estimating quantities, have an opportunity of studying the effect of light, shade and other conditions on the new growth.



—The report of the Associated Newspapers (Harmsworth), Limited, London, for the year ended March 31st last, states that satisfactory progress continues to be made in the construction and equipment of the pulp and paper mills at Grand Falls, Newfoundland. The mills, it is expected, will begin the manufacture of pulp and paper in the fall.

—While definite plans for the W. R. Hearst pulp mill project near Bay d'Espoir, Newfoundland, are not forthcoming, news comes to hand of several important timber area transfers supposed to be in connection with the same. Messrs. Taylor & Freeman, with representatives of the Hearst syndicate, recently arrived in Sydney, C.B., from Newfoundland, and disposed of a tract of about 385 miles of timber on Ganda River, and other negotiations are under way. It is estimated that the pulp mill and timber areas in connection with the Hearst project will cost between \$10,000,000 and \$15,000,000.

—A general lock-out has been declared in Swedish pulp mills.

—St. Maurice Industrial Company is putting up a rossing mill at La Tuque, Que., and will erect a large pulp mill.

MONTREAL DOINGS.

(Special to the Pulp & Paper Magazine.)

Montreal, July 10th, 1909.

The Federated Press, Limited, has been formed, with a capital of \$20,000, and headquarters at Montreal, to take over the plant of T. A. Todd and to carry on a printing and lithographing business. The members of the firm are T. A. Todd, R. Duckett, L. A. Gosselin, K.C., P. E. Lamarche, and R. Benoit, all of Montreal.

The pulp and paper industry at Three Rivers, Que., is again in full activity. The mills of the St. Maurice Lumber Co., the Union Bag and Paper Co. and the Burrill Mill began sawing about the third week of June, being a day or so in advance of a year ago. The condition of the river there made it safe to open the booms.

J. A. Hardisty, Montreal manager of the E. B. Eddy Company, Limited, states that the company's mills are again operating at a normal capacity, the spring freshets having subsided. The logs are coming down freely, and the drive should be over before long.

The J. C. Wilson & Company, Limited, reports a slight falling off in trade, due to the arrival of the quieter season of the year. Nevertheless, business is forty per cent. more active than a year ago and satisfaction is general. The firm's drive of logs is safe and the outlook is in every way most hopeful.

Garnet M. Strong, of Cambria, Que., who has had many years experience in the lumber business, and who left Montreal recently for Newfoundland to take charge of the operations of the Gambo Lumber Company, has reached his destination and reports favorable progress. The Gambo Lumber Company, Limited, is incorporated under the laws of Newfoundland, with a capital of \$60,000, and the shareholders are composed almost entirely of Montrealers. About a year ago the company purchased some 60 miles of spruce and white pine in the Gambo dis-

trict, Bonavista Bay, on the east coast of Ancient Colony, and operations have been in progress since early last winter. The officers of the company, who are also identified with local lumbering concerns, are Messrs. G. A. Scott, president; J. E. Seale, vice-president; and E. M. Nicholson, secretary-treasurer.

Commenting upon the industrial effect, on the Province of Quebec, of the recent decision of the Government, as announced by Premier Gouin, to prohibit the exportation of pulp-wood logs from the Crown Lands of the Province, Mr. S. P. Timmerman, Industrial Commissioner of the Canadian Pacific Railway, said:

"You can hardly imagine the harm that has been done to the pulp and paper industry of Canada through giving the Americans the free use of our magnificent timber resources after they have exhausted their own, or very nearly exhausted them in the Eastern States. It is just this that has enabled the American mills not only to supply their own markets with paper but to compete with us in the outside markets and the markets of the British colonies that ought to belong to us.

"Canada is now sending a fair amount of paper to England, and to other parts of the British Empire, notably South Africa. If you go down to Grand Mere, where the Laurentide Company has its works, you will be surprised, as I was recently, to see bales of paper being addressed to places that we were all familiar enough with during the Boer war, but of which few of us have heard since. The Americans are also sending paper to these places. And what are we doing? We are actually allowing the American pulp and paper-makers to draw from Canada the raw material that enables them to produce the manufactured article to compete with ours in the markets of our own colonies.

"That will not happen when the export of pulp-wood is prohibited. What will happen then, will be this: The American manufacturers will come over here and set up mills and we shall have the greatest pulp-wood paper industry in the world, here. We have not only the timber, but we have the sources of electric power. No country in the world is so richly endowed with the waterfalls from which power can be produced. There is no reason why, with our own resources properly conserved and protected Canada should not lead the world in paper production."

One of the principal topics of discussion among the pulp and paper men of Montreal, during the past month, has been that of the possible merger between the Riordon Paper Mills, Limited, of Montreal, and G. H. Perley & Company, of Hull, Que. Nothing definite has transpired, as yet, in the matter, but the general belief is that the merger will be brought about as the result of the negotiations which have been in progress for some time past.

The advantages of the merger would be that the two principal companies operating on the Rouge River would thus become one and could carry on their operations at a lower cost, both as to cutting and driving the logs and turning them into lumber, pulp and paper, and in marketing the product. The companies now own some 600 square miles each, on opposite sides of the river, making 1,200 square miles, in all, principally spruce areas, the greater portion of the pine having long since been cut off. In addition, the Perley interests own some half dozen or more saw mills, while the Riordon interests own a pulp and paper mill at Merriton, Ont., and a sulphite plant at Hawkesbury. The latter has a capacity of 100 tons of sulphite per day, and is said to be worth about one million dollars, being one of the largest of its kind in America. It would be the intention, if the merger were brought about, to erect an immense bleaching plant at Hawkesbury, to supplement the

sulphite plant. Although it was at first stated that the capital of the amalgamation would be in the vicinity of \$3,000,000, it is now believed that it would not be less than \$5,000,000. It is said that the timber limits owned by the two companies embrace practically everything of note on the river.



WOOD FIBRE.

Among recent experiments connected with the bringing of fibres to the desired fineness is the loosening of them by jets of water under pressure, the work being perfected in the hollanders with or without the addition of other materials. The advantages of this system include a saving in the amount of further treatment required and the simultaneous cleaning of the material.

The method in question is applicable under two forms—stationary and rotating—the removal of the expelled fibres being facilitated by the continuous action of the jets, while the loosening of the fibres is said to be most successfully effected when the decomposing appliance attains the highest possible number of revolutions. Efforts have lately been made to materially increase this number of revolutions by water or air pressure. For this purpose small turbines are constructed, driven on two sides by jets, greater speed being thus obtained in proportion to the pressure of the motive force. It is, however, not out of the question that the speed of revolution can be increased by other means.

Various appliances have been introduced for the dissolution of the masses of fibre, but in most of them the fibre is driven in the direction of the current. As it has also been established that the effect of the jets can be increased by the conveying of the fibre by means of quickly rotating drums or similar appliances in a direction opposite the current, two drawing and irradiating belts arranged close to each other can be used. Three jets are directed against the belts.

The fibres are conducted to the outer sides of the belts, and while being moved upward are loosened by the jets of water. A further treatment of the fibres is effected in a downward direction at increased speed by the central jet, the fibre being again conducted by the belts.

The fibres, after descending, fall upon a cloth, where the water is extracted from them. The repeated action of the jets of water on the masses of fibre effects a thorough cleansing of the latter. In cases where a longer washing is needed it can be continued in special appliances. The teeth fastened to the surfaces of the belts are in an upward direction, so that they take up the fibres from the conveying belts and move them against the jets. The width of the belts depends upon the number of jets used, while their speed is regulated by the force of the jets. Both the drawing and irradiating belts usually travel at the same speed. A trial has been made of establishing a certain difference between their velocity, but no particular advantage was discernible, while the loosening of the fibre was not uniform. Three jets, obliquely directed against the circumference of the drum, provided with sharp points, are used. The fibre is introduced by means of conveying belts from a receptacle being moved against the jets by the points on the drum. At the back of the drum is a roller, with sharp points, which rotates quickly and removes the fibres which have been subjected to the action of the jets. The quick revolution of this roller removes the flow of water from the drum and facilitates the washing and straining of the fibre.

In all these applications of the system the greatest uniformity possible in the introduction of the material is important. When introduced by hand various degrees of thickness may be presented by the layer of fibre, so that the use of the special machinery for that purpose is recommended. An additional roller is sometimes introduced for the purpose of further treating the fibres.

Another form of applying the principle is where the fibres lying on a horizontal belt are loosened by jets of water, the sharp points on the belt being in an oblique position. The conveying belt is moved by two end rollers. On the upper part of this belt is a roller with teeth, and underneath a smooth roller. The fibre on the conveying belt is at the same time subjected to the action of jets of water from above and below. When it reaches the end of the belt the fibre is carried along, together with a part of the water, by a roller, while another portion of the water falls from the end of another roller. Any remaining water falls into a channel, and can be conducted toward one side of the machine or reservoir underneath.

The same arrangement can be used for loosening moist or dry sheets of wood pulp, but in that case the upper roller has to be placed at a suitable height, or can be altogether left off, as the sheets are held by the points on the belt. For the purpose of quickly loosening the sheets of pulp by jets of water an effort is made to thoroughly moisten them, so that the particles of pulp may be washed off by the jets, an endless belt bringing the sheets from the moistening receptacle up an inclined plane.



IMITATION BROWN WOOD PAPER.

This sort of paper is common on the market. The genuine article consists of paper made from brown mechanical pulp with just enough of other kinds of pulp to give the necessary degree of strength to the paper. A paper made of brown mechanical pulp alone would tear too easily to be of much practical service. Pure brown wood papers are, nevertheless, on the market, but their use is restricted to a few special cases, and they require extreme care and delicate handling in their manufacture. The making of the imitations, on the other hand, is a very simple matter, and they are at

least tough enough to be used for packing purposes. The process of manufacture depends upon the exact use for which the finished paper is intended, e.g., whether it has to be used for packing light, bulky goods or heavy, compact articles, and whether the parcel is to lie on the shelves of a warehouse or stock-room or whether it has to be carried about.

Imitation brown wood paper is in any case always made from waste paper, never from fresh pulp of any kind. The waste-paper chosen may be a medium or third-rate quality, provided it is fairly strong. The maker should procure his material ready sorted out from the sorting establishments. Unless he has an abundant supply of cheap labor, it will not pay him to do his own sorting. At the same time, care must be taken that the stuff has really been sorted. The writer has bought waste from the sorters which was full of cherrystones and nutshells, and the whole batch had to be hand-picked. If such bodies are left in the waste they are crushed in the pug-mill and hollander, and make their appearance in the form of hard lumps in the finished paper. These lumps readily form starting points for tears and holes.

The process of manufacture is as follows: The waste paper is first torn up in a devil—by far the best apparatus for the purpose. The use of a devil is far preferable to the employment of a boiler or a pug-mill, as the devil acts more quickly and more completely than either of the others. It is true that if boiling is resorted to the size can be added in the form of rosin soap at the same time, and this cannot, of course, be done during deviling; but the gain is insignificant as compared with the enormously longer time required to disintegrate the scrap paper. Another point is that the prolonged boiling is not without a distinct diminishing effect on the strength of the fibre. Again, the sizing is never perfect, and much of the rosin soap is lost in the spent lye run off from the boiler. The great fault attending the disintegration of the paper in the

pug-mill is that lumps of foreign matter are ground up with it, with the results above mentioned with reference to cherrystones. The devil leaves such bodies untouched, so that they can be subsequently got rid of by sieving. The action of the mill is also difficult to supervise, so that the pressure and speed may be regulated within proper limits.

From the devil the stuff goes to the hollander, where it is worked up with the proper proportion of mechanical pulp. The adjustment of the quantity needed requires great experience. It depends on the quality of the output of the devil, and also upon the use to which the finished paper is to be put. Care must be taken that the disintegration in the hollander does not go very far beyond that obtained in the devil. To get the brown color the pulp must be dyed with a suitable artificial dye. Metanil yellow, safranine, and auramine all answer well, or a brown pigment can be used, such as amber, when the paper will be colored and loaded at the same time.

The paper is thus simply a dyed paper made from waste. The paper is calendered at not too high a pressure, especially if it is heavily loaded. In view of the fact, however, that the paper is not very strong under any circumstances, the amount of loading should be kept as low as possible. If the paper is dyed with an artificial dye, the loading material should be white, and either china clay or gypsum should be employed, unless a vegetable load, such as starch or meal, is preferred.



MORE ABOUT CORNSTALKS AND BACASSE.

G. R. Noble, who has been identified with the testing and introduction of new fibres, writes as follows in the *World's Paper Trade Review* regarding the advantages of cornstalks, bagasse and other materials for paper-making:—

Bagasse was first tried by the late Thomas Routledge, in 1854 and 1855,

and was held by him to be superior to esparto, but there were certain difficulties in shipment which did not exist with esparto, so the latter was taken up. The tests were first made at his paper mill at Eynsham, Oxfordshire, and then on a much larger scale at the Ford Works Paper Company, Hylton, near Sunderland. I was sent there in 1865 to learn esparto boiling and paper-making, and I lived with Mr. Routledge at his house, near the mill, and as we were very often alone at night I heard all about the introduction of esparto and tests on other fibres. I went through the evolution of introducing many other fibres, and had fifteen years' experience in sulphite wood pulp, as I put up about one mill every six months in Germany, Italy, Russia, Finland, etc., for seven years, and then did the same thing for eight years in various States in the United States of America.

G. & T. A. Noble had a paper mill for experimental purposes in the Wye Valley, so I had nearly all sort of fibres to test that were brought into the London office; those I thought were doubtful, and would upset my routine paper-making, I made small tests of in a small 56-pound boiler and a beater. I also learned to make paper by hand in order to carry out experiments that were impossible on a small scale. I tested fibres in the green state, that is, that had not matured to the seed bearing state, and one day a man brought into the London office a proposition to make paper out of rye grown as a forage crop, that is, cut just before ear began to form. I was instructed to test this. I grew four acres of it on some into fine printing paper, and it turned fertile land, and obtained 4 tons of dry straw to the acre; this I knew I could run all right, so I worked up the 16 tons out equal to the best Spanish esparto. I quote this because the cornstalks and the other fibre are harvested before seedling can take place as a forage crop—or called in America a fodder crop—and yield a fibre similar to the best Spanish esparto, and not like straw.

The cost of the fibres mentioned per ton is: No. 1 (bagasse), £3 17s. 9d.; No. 2 (cornstalks), £4 13s. 2d., and No. 3, £4 13s. 2d. On bagasse an allowance must be made for by-products of 15s. 7½d.; cornstalks (for sugar and by-product), £2 6s. 3d., and on No. 3 fibre, instead of any outlay, an advantage is shown of £7 16s. 5½d.

The cost of the above three unbleached fibres—which can be grown anywhere in the United States as far north as Ohio—shows a startling comparison with straw pulp, sulphite, soda and esparto, which average, say, £8 15s. 8d.

It may be that sugar producers will see their way to enter the ranks of pulp producers with some degree of activity in the near future. They are familiar with the sugar yield, and as pulp-makers they will be in a position to supplement their present profits. The growing scarcity of wood in the United States should also direct attention to available new paper-making fibres.

In the treatment of bagasse, cornstalks and similar fibres I have introduced special methods, in order to obtain the highest possible yield percentage and quality of fibre, and at the same time I get a by-product (irrespective of sugar, molasses and syrup recovery) before boiling, worth about 15s. 7½d. per ton of dry fibre, which can be used for various purposes.

My treatment of the above fibres can also be applied to get printing and writing ink out of old waste paper, and this will also yield a by-product of 15s. 7½d. per ton of waste paper. It does not hurt the color of the fibre, especially where the waste paper contains a large percentage of ground wood pulp; some methods of treatment turn it very brown.



—It is interesting to note that a French pulp mill, situate at Rouen, is about to begin the shipment of pulp to Sweden. At the same time considerable importations into France of Canadian pulp are taking place.

THE MARKETS.

Toronto, July 9th, 1909.

Since our last report there has been little material change in the situation in the pulp and paper trade, although what change there was has been in the direction of greater buoyancy, though the hot weather has had some effect in keeping things quiet. General business has improved in keeping with the fine reports respecting the growing crops, especially in the West, where warm weather and frequent light showers have brought the grain on in splendid shape and with remarkable rapidity. In the United States, through tariff uncertainty or some other cause, business seems to be still under eclipse, and this is affecting adversely the market for pulp. Ground wood is held in Canada at around \$16 to \$17, but nobody seems anxious to sell, as if drouthy conditions continue as long as was the case last year and the water-powers give out, it may be a scarce article before fall. Rains of last week will doubtless help. Sulphite is quoted at about \$40. In paper an upward movement in wrappings has been expected for some time, as prices have been quite low. It is possible that the competition of the stronger Kraft papers is now taking effect. Roll news is selling at \$2.20 to \$2.40; sheet, at \$2.20 to \$3 according to quantity. Reports from Chicago state that newspapers in that city have been offered Canadian news at prices less than the cost of production in the United States. No. 1 manilas and fibres are \$3.75; No. 2, \$3.50; red brown, \$3, to \$3.10.



RAG AND PAPER STOCK MARKET.

Montreal, July 9, 1909.

Rag and paper stock supply men report a steady market. Demand shows a falling off, to some extent, in sympathy with the less active trade among the paper mills. All this, however, is not unexpected, it being the customary thing

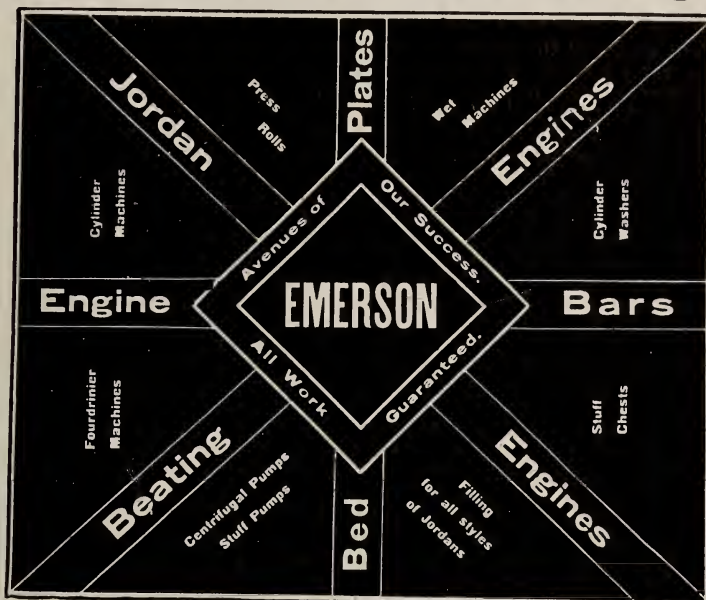
for trade to fall off during mid-summer. Another factor which may have something to do with the falling off in demand for rag and paper stock is the fact that the supply of ground wood pulp is more liberal, and, while this is not a substitute for rags by any means, it might happen that the mills would use it instead of paper stock for the production of certain lines. Notwithstanding the falling off in demand trade still continues fair for this time of year, being considerably better than a year ago.

Under the circumstances, it is not surprising to find that quotations have declined slightly from those of a month ago. This applies not to the whole list but to only a few lines, such as paper shavings, common waste now being 25 to 35c., instead of 30 to 40c., as a month ago, and to roofing stock, No. 1 satinettes being 75 to 80c., instead of 80 to 85c., and No. 2 satinettes being 45 to 50c., instead of 50 to 55c. The rest of the market continues unchanged. Prices of graded stock are as follows, basis, Montreal:

	Per 100 lbs.
Shirt cuttings—	
White	\$4 50 to \$5 00
Unbleached cottons . . .	4 25 to 4 75
Light print cuttings... .	3 00 to 3 50
Shoe rag cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 25 to 0 35
Roofing stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25

(Markets Continued on Page 46.)

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PAPER MILL MERGER.

Though, according to latest information to hand, no definite plans have yet been made, negotiations are being conducted to amalgamate the Riordon Paper Mills, Limited, Montreal, and the G. H. Perley Lumber Company, of Hull, Que. The object of the merger, which involves a total capital of something like \$3,000,000, is to acquire timber limits on the Rouge River, near Hawkesbury, Ont. At the present time there are six hundred miles of limit in that district, one-half of which is owned by the Riordon Company, and the other half by the Perley firm. An important result of the merger, it is said, will be the erection of a large bleaching mill at Hawkesbury to supplement the present \$1,000,000 sulphite plant in that town.

The Riordon Paper Mills have a sulphite plant at Hawkesbury, Ont., and a large mill at Merritton, Ont. G. H. Perley Company control a large lumber industry at Hull.



—The Wood Waste Distilleries Company, Cleveland, Ohio, have entered the field for the purpose of placing within reach of the ordinary public small stills for making at a small cost denatured alcohol for fuel and illuminating purposes. The spirit can be made out of wood waste, sawdust, refuse from farms or market gardens, etc., and is said to be superior to gasoline for the above purposes.

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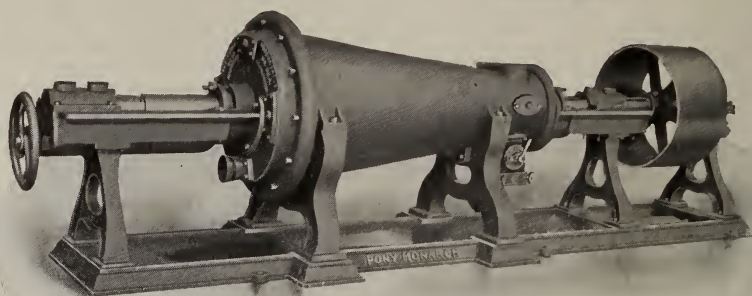
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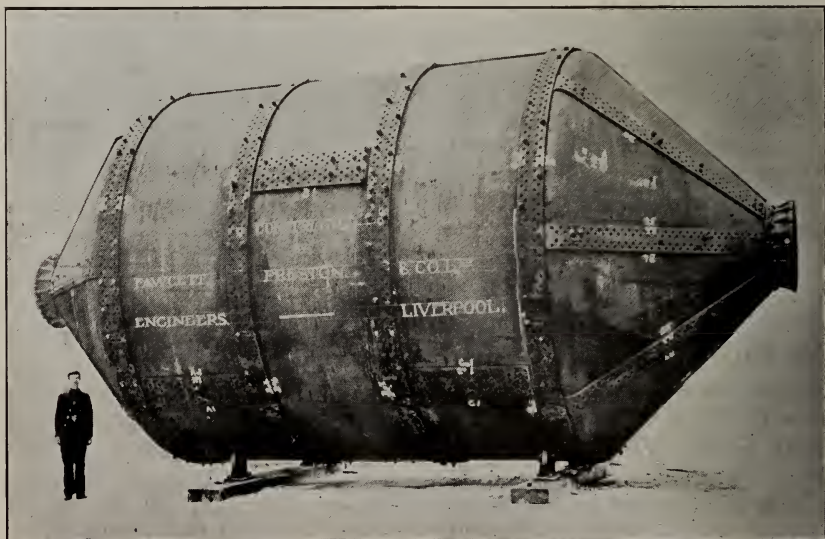


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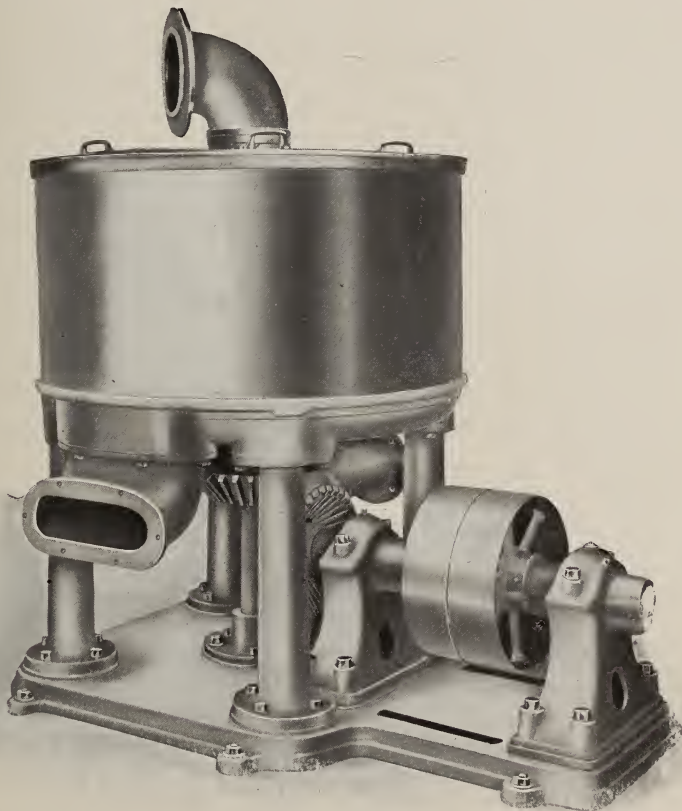
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BRITISH MARKETS.

London, June 29th, 1909.

The market for sulphite continues dull, and new business is on very small lines. Large stocks are reported, and the question of a temporary shut-down is being seriously considered by some mills. Quotations for mechanical continue to be firmly maintained. The demand, however, is reported quiet.

The market for esparto is dull, at about former currencies.

For chemicals the demand continues fairly good. Bleaching powder (soft wood) is quoted £4 7s. 6d. to £4 10s.; caustic soda, 76-77 per cent., £11; ammonia alkali, 58 per cent., £4 15s.; soda crystals, £2 17s. 6d.; salt cake, £2; and recovered sulphur, £5.

In home rags trade is quiet; there is, however, a fairly good inquiry. Business in foreign rags is not so dull as is usually the case at this time of the year. The demand is chiefly for the better grades.

Stocks of waste papers are plentiful; prices unchanged.—World's Paper Trade Review.



SCANDINAVIAN MARKETS

A Christiania correspondent of World's Paper Trade Review states that the pulp trade continues unchanged. There is no increase in the demand for chemical, with the exception of a number of large foreign orders, that recently have been, or now are, in the market, but these have been kept in reserve already for some time. A larger amount of business than the foregoing month does not, therefore, evidence any decided change in the state of the market.

The circumstance accounts for the scattered instances of refused business on the part of the sellers, which buyers have experienced. On the other hand, buyers have certainly not had any difficulty in getting their wants covered, and it might

as well be said that, practically speaking, they are getting the pulp at the prices they wish to pay.

Another thing is that considerable importance is paid to qualities, and consumers are evidently familiar with the fact that, while there is pulp to be had at certain figures, if a brand of high-class standing or anything out of the ordinary is wanted better prices must be given. The depressed state of the paper trade makes it essential for the papermakers to keep close to the mark in qualities, in order to avoid loss by claims of any nature. This, of course, reacts on the pulp trade. In order to make the best paper the manufacturers must have the best pulp, and the consequence is, that while the general depression is continually felt all over the line, there are a number of pulp mills that are having a better time of it than many of their competitors, both as regards prices obtained and in the weight of their stocks, which are keeping within reasonable bounds, in spite of the mills being forced to their utmost yielding capacity.

The above is confirmed by recent sales of first-class strong sulphite lots of several hundred tons, for prompt delivery, being sold at prices equal to £7 12s. 6d. per ton c.i.f. London, with usual deductions for commission and cash discount.

Easy bleaching sulphite is realizing comparatively fair prices, although there is rather more in stock compared with the demand, but holders prefer to let business pass them rather than cut down their figures.

As regards the different grades of soda pulp it is difficult to judge prices, owing to the reserved attitude of the sellers. However, soda shows better statistics than sulphite, both as regards quantities disposed of, compared with the estimated outputs, as well as the quantities in stock.

There is very little change in the mechanical wood pulp market. Deliveries under contract are reported to be considerably behind. Prices firm.

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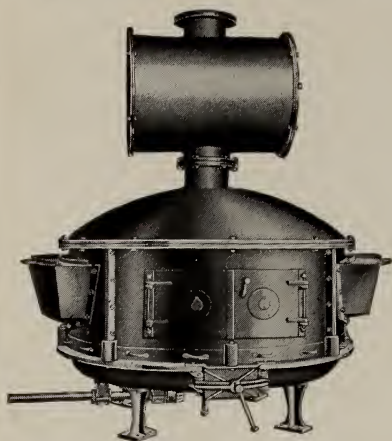


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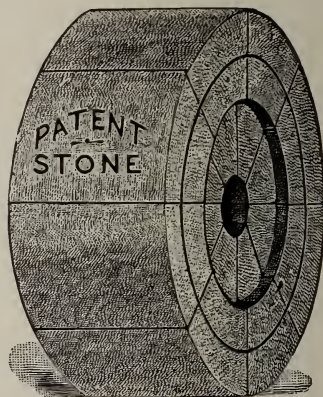
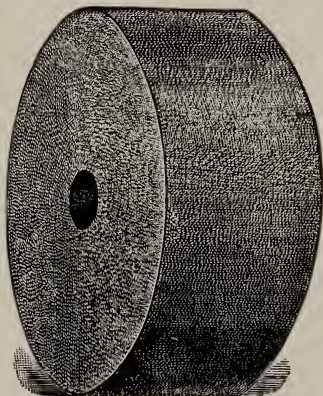
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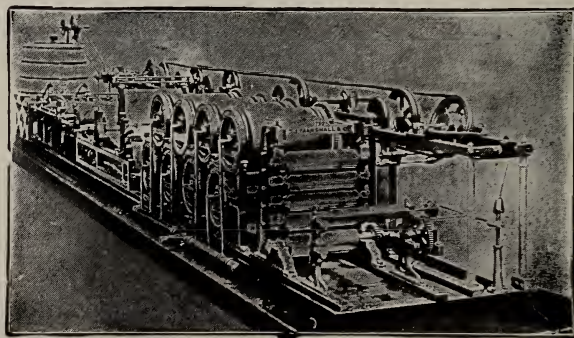
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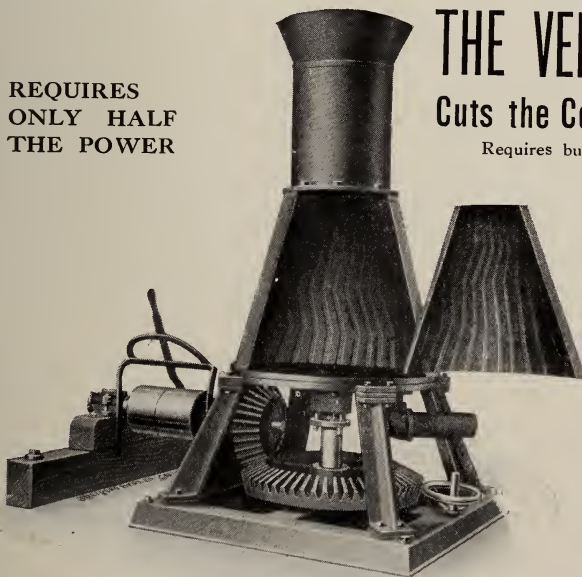
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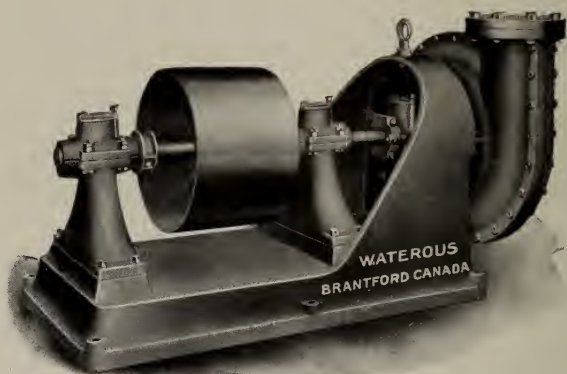
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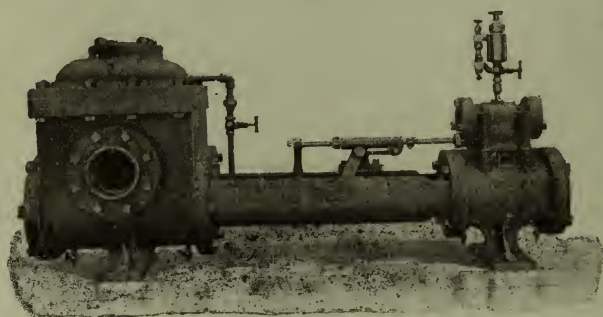
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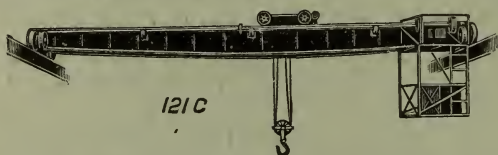
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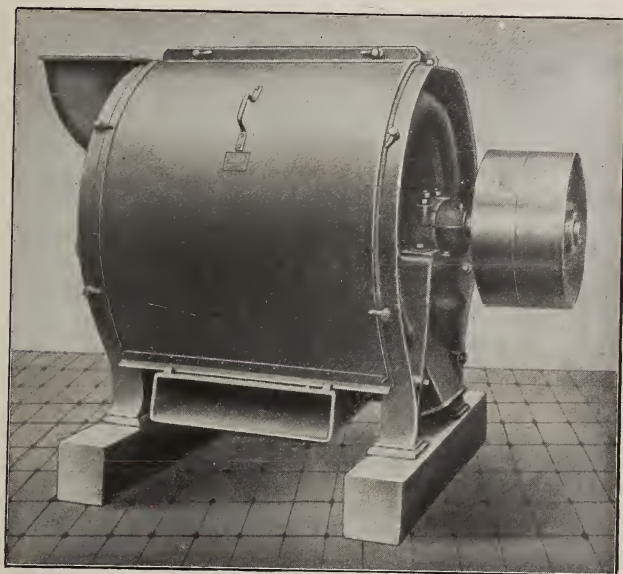
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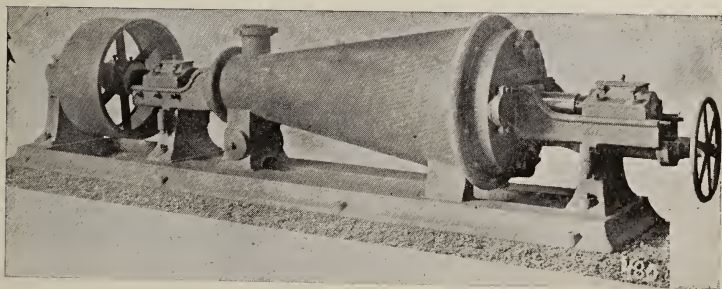
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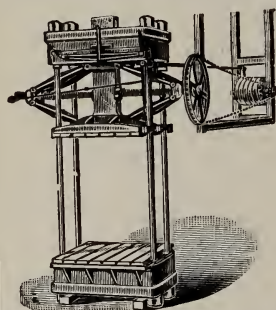
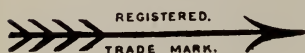
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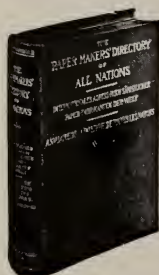
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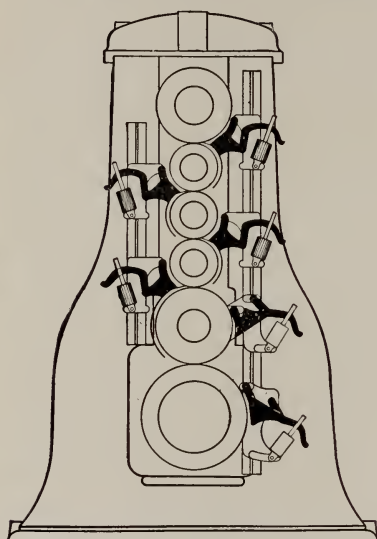
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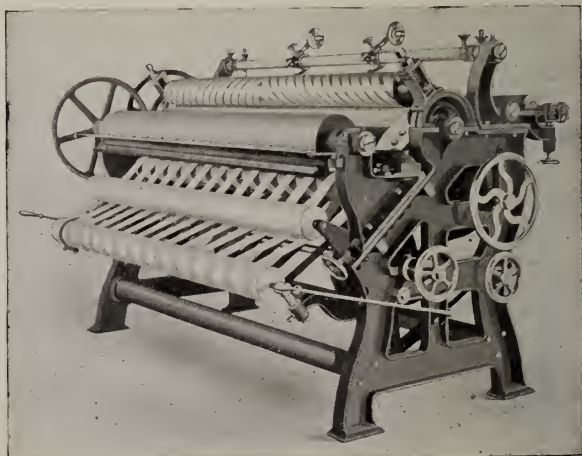


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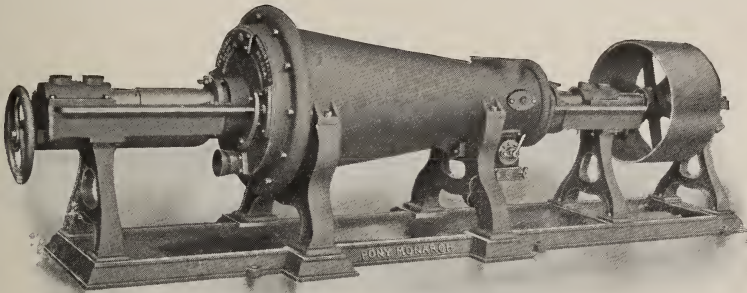
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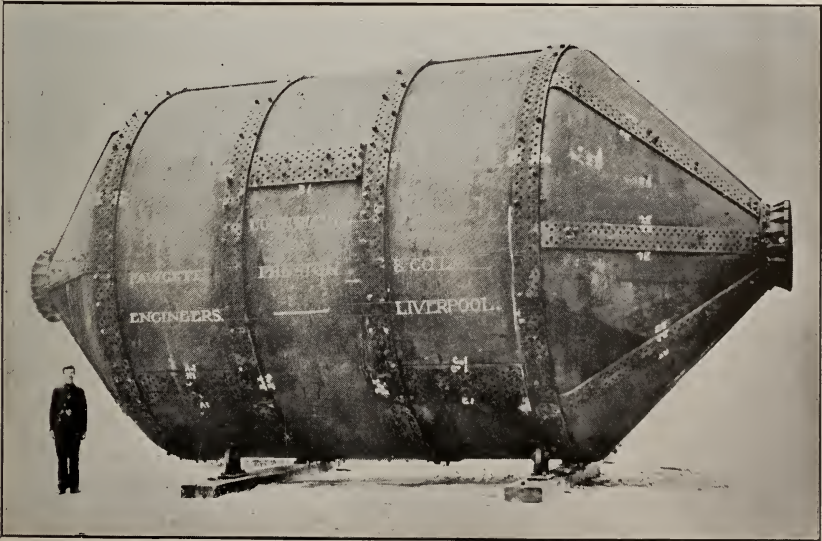
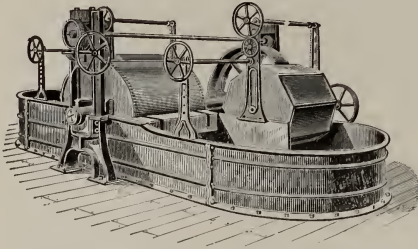


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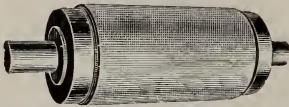
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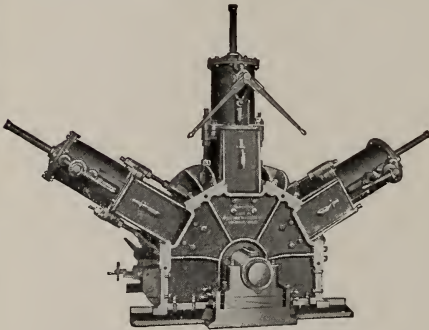
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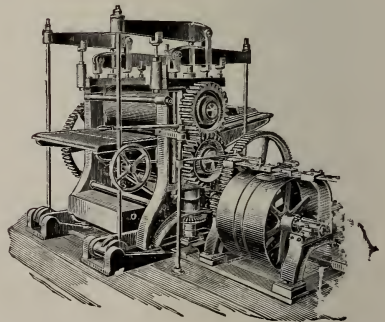
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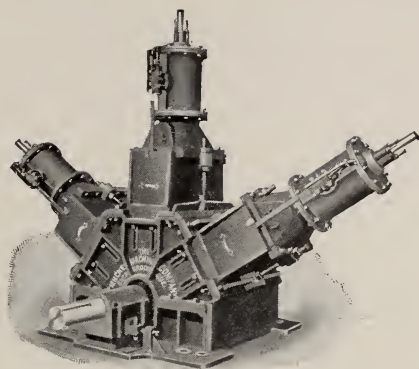
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 8.

TORONTO, AUGUST, 1909.

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Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month. and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

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TARIFF LEGISLATION IN THE PULP AND PAPER TRADES.

The new tariff of the United States is now enacted into law. That much is certain, but, as in the case of the rossed wood question three or four years ago, it will probably require some straining out in the courts before the disturbed currents of trade are clarified into a settled policy, even if some political action on the part of Canada does not upset the calculations of the American tariff builders.

To the average onlooker outside of the United States it seems that, as regards the "revision downwards," so much talked of and so generally demanded by the people of the United States, the new tariff provides the maximum of appearance with the minimum of reality. Some of the "jokers" con-

cealed in the various clauses conceding so-called reductions of duty were discovered during the discussions in committee and in the conference, but other jokers will probably be disclosed when the tariff is put into operation. It is curious to notice that in pulp and pulp wood—those two materials in which newspaper editors and publishers have been most interested, on which there has been the keenest discussion, for which material has been provided by the exhaustive report of a special commission—the reduction that seemed most radical may turn out a Dead Sea apple, if the interpretation put upon it by the Paper Trade Journal is correct. The text of this part of the new tariff, and our contemporary's views, are given elsewhere.

One commentator on the new tariff caustically remarks that the most important things now left on the free list are acorns and skeletons, and even the acorns have to be brought in "unmanufactured" before they can be admitted free. A representative of the Pulp and Paper Magazine, after an extensive tour through the Northern and Western States, found a general disappointment at the outcome, and thinks that the agitation for a reconsideration of the whole tariff question and a demand for more substantial reductions will be continued. As the situation appears to-day the most important departure in the economic legislation of the Taft administration is not the Payne-Aldrich tariff, but the new income tax, which if it provides the expected revenue will probably be ex-

tended in other directions. Direct taxation is after all the most rational way of raising public revenues in a country like the United States or Canada, as it affords a better check on the wastefulness and extravagance of governments.

As to the effect of the United States tariff on the Canadian pulp and paper industries more depends on the action of the Dominion Government in regard to the export of wood than upon the changes in the United States tariff on pulp. If the net reduction is only 25c. a ton, as believed by the Paper Trade Journal, there will be little change. If Quebec and Ontario retain their present regulations the working out of the tariff will leave matters as they are, and the reduction in duties will apply only to New Brunswick and Nova Scotia, which have been exploited comparatively little heretofore by United States operators in timber limits for the pulp trade. The benefit, moreover, would be chiefly confined to eastern United States mills, and the process of depleting the forests of the eastern provinces cannot go on in the Maritime Provinces to the same extent as in Quebec before the people will have realized that they are throwing away a mackerel to catch a sprat, and that the conservation of our forest resources is the greatest question affecting the material interests of Canada.

In considering this question one cannot help realizing what a profound influence the prohibition of the export of timber from Canada would have on the fortunes of the party now in power in the United States. A measure which with one stroke would transfer so large a part of the pulp and paper industry from the United States to Canada and would raise the price of news and some other staple lines of paper to blockade prices would bring about such a storm as would probably destroy the administration that caused the trouble.

Judging from appearances, however, this new tariff has been framed out of consideration of the domestic interests of the United States alone and not as a

blow to the interests of other countries, hence Canadian should not take offence at it. Canada, on its part, must consider what steps it should take to conserve its own great natural resources, and we need not repeat the facts which show how vital to the national well-being our forests are. If paternalism is justified in any feature of national policy it is surely in the preservation and regulation of the forests, and whether the export of pulp-wood is prohibited or not it is high time that the cutting of timber was regulated and controlled throughout the country on private as well as on Crown lands.



A NOVEL PLAN FOR PRESERVING THE FORESTS.

R. A. Whiteford, of Montreal, suggests a somewhat novel scheme for preserving our forests. He points out that Canada has pulp-wood to sell, and that the United States is our best customer for it, and it is to our interest to still continue in that relation. It is plain that our forests, though in times past they have seemed inexhaustible, will need more effective means of preservation than those now in use, unless they are to be depleted like those of the United States and other countries. In order to do this, without putting the average taxpayer to still greater expense than he incurs now, Mr. Whiteford proposes that we, instead of the United States, impose the taxes on lumber, wood pulp and paper recommended by the committee of the House of Representatives, and that we agree to utilize the whole of same, less possibly the cost of collecting the dues, for the preservation and replanting of our forests. An agreement might be made with the United States for a term of, say, five years, during which period both countries would bind themselves not in any way to change the tariff on the materials for the manufacture of paper. Upon such

an agreement being signed, a royal commission would immediately proceed to investigate the need of our forest land, and especially the best means and the approximate annual cost of preserving them. At the end of the agreed term the commission, upon which a prominent forestry expert of the United States might be invited to sit would become a permanent institution, and be endowed with powers similar to those of the present Railway Commission. They would investigate troubles and propose legislation, they would found forestry schools and provide us with reliable statistics on what we possess in our forests, but the chief of their duties would be the presentation of their annual budget—i.e., the tariff of dues imposed on exported lumber, wood pulp and paper, necessary to meet the probable expenditure on forest preservation for the following twelve months.



CANADA AS A TIMBER SOURCE.

The address of Dr. B. E. Fernow before the Halifax Canadian Club brought before his hearers the necessity of timeliness in giving proper attention to the care of woodlands. He congratulated the Nova Scotia Government upon its organization of a forest fire service. Statistics show what it means to Canada, and will mean in future, to conserve its timber resources.

One hundred and twenty-five million dollars is the wood bill which Great Britain annually pays to other nations. Forty billion feet board measure is the amount of sawed lumber the United States is consuming annually, and the value of the finished forest products of that nation amounts to the stupendous sum of 1200 million dollars. Germany imports 60 to 70 million dollars worth of wood products besides her home production under a well regulated forestry system.

Nova Scotia's forest areas comprise about 70,000,000 acres, or about the same as those of Prussia, which country draws a net annual revenue of \$18,000,000 from the annual growth, and leaves the original forest better than before.

Another point made by Dr. Fernow is that two-thirds of the Eastern Provinces consist of such soil and climate as can not be used for any other purpose than timber growing. Every Canadian should realize that a very large portion of the Dominion, which by nature is wooded, is fit for timber-growing only, due to soil and climate conditions, and that therefore Canada should eventually become the producer of the world's timber supply.

Referring to the barrens, Dr. Fernow contended that not all of them were worthless, but that some could be made useful sooner or later.

He advocated a policy for the Government not only to hold on to the lands now in its possession, although they were comparatively worthless now, but to devise a scheme of re-possessing itself of the young growing timber, for eventually the Government alone could afford to go into the forestry business.



In one of its editorials quoted in this issue the Paper Trade Journal warns Canada, and all whom it may concern, that some day soon a substitute for spruce in the manufacture of cheap papers will be discovered, and then the United States will no longer need Canadian wood. For the last 25 years chemists and paper makers have been experimenting with almost every likely substance in the realm of nature to provide this cheaper raw material, but so far that material has not been found. As in the linen trade, in which commercially successful substitutes for flax have vainly been sought for in the last 200 years—the people who are most confident of these new discoveries are those outside

of the trade and not in it, and patent office history is strewn with the wrecks of fortunes spent in this search. Substitutes, no doubt, come to the front when spruce and other woods get dearer, but meantime one is reminded of the words of Longfellow: "Art is long, and

time is fleeting," and money as well as fleeting time is now being used by American paper mill owners rather in quietly getting hold of Canadian timber limits, than in working out experiments with substitutes for wood in pulp making.

PULP AND PAPER NEWS

"La Semaine," a new French weekly paper in Montreal has suspended publication.

* * *

The new pipe line to the Colonial Wood Products Company's building in Thorold, Ont., is complete.

* * *

J. R. Barber, of the Georgetown Paper Mills Company is on a trip to Quebec Province.

* * *

St. Lawrence Paper Mills Company, Mille Roches, Ont., have opened an office in Toronto under the management of I. H. Weldon.

* * *

The British Columbia Sulphite Fibre Company, Limited, Vancouver, has been incorporated to manufacture pulp and paper, sulphuric acid, soda ash, caustic soda and other chemicals.

* * *

J. R. Booth, Ottawa, will build a new power-house on the site of his first saw-mill, built 50 years ago and burned down in 1900. The power will be required mainly for the sulphite box board factories.

* * *

J. F. Ellis, of Barber & Ellis, Limited, the well-known paper house, Toronto, has left with Mrs. Ellis and other members of his family for a three months' trip to Great Britain and the Continent.

* * *

The Ontario Government last year received \$1,612,242 in the shape of timber dues, the largest on record. This was partly due, however, to the fact that some had been held over from 1907 owing to the low prices of timber.

The Hamelin & Ayres Company, Ltd., which was incorporated to manufacture pulp and paper and all articles made of wood has been authorized to increase its capital stock from \$100,000 to \$800,000.

* * *

The strike of the loading crew at the Chatham, N.B., Rossing Mills for \$3 a day has caused the shutting down of both of the rossing mills. A few of the mill hands have consented to work at loading, and the work is progressing slowly.

* * *

A London dispatch states that A. W. Tait, receiver of the Imperial Paper Mills of Canada, and the Northern Sulphite Mills of Canada, Sturgeon Falls, Ont., proposes a joint sale thereof at the price of not less than £250,000.

* * *

Part of the large Winnipeg warehouse of the J. C. Wilson Paper Company, Montreal, toppled down, owing to the weight of a huge water tank. Some \$30,000 damage was done. The building was also occupied by W. J. Gage & Co., wholesale stationers.

* * *

The region of Elk Lake and Gow Ganda, in Northern Ontario, has been visited by serious forest fires and heavy damage done. Some of the fires swept into the Mississauga timber reserve. The number of fire rangers there has now been increased.

* * *

Owing to the shortage of pulpwood at the Chaudiere Mills, on account of the enormous quantities of pine logs in the river, it is proposed that the large mills should store some of their logs in the main stream in order to let the spruce pass on its destination.

There were no tenders received for the assets of the Montreal Paper Company. The liquidator, H. Vigeon, states, however, that parties are negotiating privately for the property. The mill and equipment are valued at \$106,260, and the stock on hand, finished and partly finished at \$20,819. * * *

The Ontario Government, which for some months past has had experts investigating the Gillies Limits, in Northern Ontario, now proposes to assign to Prof. W. G. Miller, Provincial Geologist, an official exploration for minerals. Some further portions of the limits are to be disposed of, in addition to the 900 acres sold a short time ago.

* * *

A rumor is abroad that F. ✓ H. McGuigan, formerly of the G. T. R., and now constructing the Niagara Power transmission lines, will become president of the Lake Superior Corporation. It is understood that a very progressive policy is to be pursued, including the development of pulp and timber limits, build-up of railroads, etc. The rumor is denied however.

* * *

George Vandyke, of Lancaster, N.H., one of the best known lumber men in New England, and connected with the Brompton Pulp and Paper Company, of Brompton, Que., was fatally injured owing to his automobile plunging over a 75 foot bank into the Connecticut River. T. H. Vandyke, of East Hereford, Que., is a brother.

* * *

We have received with pleasure a copy of the annual report of the Toronto Board of Trade for 1908. It is a more than usually valuable work of its kind, and a feature of interest to our readers is that the stock was made by the Canada Coating Mills, Limited, Georgetown, Ont. The excellence of the illustrations and type makes further comment unnecessary. * * *

In view of the many requests for information respecting the apparatus

and method used for distilling denatured or industrial alcohol, a cheap clean source of light, heat and power, it may be pointed out that the Wood Waste Distilleries Co., of Cleveland, Ohio, publish two books, priced \$3.20 and \$1.20 respectively, giving full information. That Company also has placed on the market small machines at popular prices for distilling this material.

* * *

As a result of an enquiry by Hon. Jules Allard, Quebec Minister of Crown Lands and Forests, into the origin of the fires which have recently broken out in the forests in the County of Arthabaska, it appears that these fires have been caused by new settlers who light fires in the bush and do not take the precautions to extinguish them when they leave. It is probable that he will, at the next session of the Legislature, introduce a bill making it criminal offense to set fire to the forest.

* * *

—The Ontario Department of Lands, Forest and Mines has decided to offer for sale by public tender the timber on a large burned area in the Mississauga forest reserve, Algoma district. The territory was swept by a forest fire recently, the area scorched being equal to four townships or about 144 square miles, and a large amount of timber has been so damaged that it is necessary to dispose of it in order that it may be cut this winter, with a view to reforestation. An official effort will be made to ascertain the origin of the fire, as there are no settlers or miners in that region.

* * *

The result of visits to England on financial business of parties prominently connected with the Gordon Pulp & Paper Company, Dryden, Ont., is that the pulp mill will be in a short time upon the road to completion and operation. A group of capitalists are expected from London shortly, who are interested in utilizing the water and pulp-wood resources of Dryden, and who will investigate the whole situation.

T. W. Kates, of Steubenville, Ont., has been appointed superintendent of the sulphite branch of the mill, and he will supervise the installation of the machinery.

* * *

The Valentine & Sons United Publishing Company, Ltd., Montreal, have been granted a Dominion charter to carry on business as stationers, printers, publishers and importers of and dealers in fancy goods, also to take over the publishing business of Valentine & Sons Publishing Company, Montreal.

* * *

O. Bache-Wiig, formerly of the Angus mills of the Brompton Pulp and Paper Company, at East Angus, Que., is now mechanical engineer of the Connecticut Valley Lumber Company, and reports that his Company is preparing to establish a sulphate mill in Vermont to manufacture Kraft papers.

* * *

There was a report recently to the effect that the James MacLaren Company would remove their pulp mills from Buckingham, Quebec. This is without foundation. The Company has, however, removed its head office from Wabasse to Rapide de l'Orignal, at which place it will erect a large saw-mill.

* * *

The St. Lawrence Pulp and Paper Company, Ottawa, has begun the manufacture of pulp board in its new plant. They use sulphite stock, much of the raw material coming from the screenings from other mills. The capacity of the mill is 35 to 40 tons per day. There is said to be an active demand for the product.

* * *

The Smart-Turner Machine Company, of Hamilton, well-known for years as one of Canada's leading firms in the manufacture of power pumps, have decided to go into pumps for pulp and paper mills. They will manufacture a new line of stuff pumps, and vacuum power-driven pumps. They are now supplying to the

Jonquiere Pulp Co. two 8 x 10" stuff pumps, and one 16 x 16" vacuum pump. There should be a good field for this class of pumps of Canadian manufacture, and no doubt the Smart-Turner Company, in this new departure will maintain the reputation they have gained for their other types of power pumps.

* * *

R. H. Campbell and A. Knechtel, of the Dominion Forestry Department, who are engaged in locating the boundaries of western forest reserves, have the work well advanced, and believe that a distinctive step towards the preserving of timber has been made. Very few fires have occurred this season, and no big timber has been destroyed of any account. Beds of seedlings, which were planted by rangers this spring, under instructions, are doing well, and some of the plantations on the open prairie are also growing fine. Mr. Knechtel said that the department planned to take much of the land in central Manitoba, where it was too high for farming, and plant it with trees, and he hopes to afforestate these within a few years.

* * *

The Canada Coating Mills, Georgetown, report that in July they experienced the largest month's business in the history of the mill. They are now very busy on large contract orders. However, with the additional capacity given by their new machine they are able to take care of their rapidly growing business. This mill has been working during the summer on the largest contract for coated paper ever given in Canada, being over 2,000 reams. At the half yearly director's meeting, early in July, a dividend was declared at the rate of 6 per cent. This is practically gratifying to the management in view of the fact that during the past year very considerable reductions were made in the Company's indebtedness, which is now on a very satisfactory basis.

* * *

In response to an address recently presented by the employees of W. J. Gage

& Company to the president, W. J. Gage, congratulating him on the completion of the firm's sixty-five years of successful business, Mr. Gage announced that he contemplated further extending benefits for his work-people in addition to his system of profit-sharing with employees, by placing \$5,000 at the disposal of a committee selected from the different departments of the house, to assist them in forming a first-class beneficiary fund for the sick, and a pension fund for those who had grown old in the service of the house. A committee made up as suggested by Mr. Gage is now working out the details of a plan to secure this object, and as soon as this is accomplished the fund will be established.

* * *

Despatches from Newfoundland indicate that the hydraulic engineers now examining the water powers at Bay D'Espoir for the Hearst interests have now finished their work and expect to wind it up in about a week's time. They are more than pleased, it is claimed, with the water power facilities, which are of much greater magnitude than expected. As soon as their report is sent in, the finalizing of matters in connection with the transfer of the properties to the Hearst combine will take place, and the Newfoundland people confidently expect that this part of the colony will be transformed into a large manufacturing center within a few years. As previously stated the area comprises one thousand square miles, two mills are to be erected and employment to the amount of one million dollars will be annually given out in wages when the mills are in full swing.

* * *

The Minnesota Power Company, which is the power supply department of the Backus & Brooks Co., at Fort Francis are developing 15,000 horse-power on each side of the river, thus providing for industrial enterprises in Ontario and

Minnesota. The question of the timber limit concession granted by the late Ross Government to the Backus & Brook Co., is not yet settled, but if it is satisfactorily adjusted it is the intention of the Company to build a mechanical pulp mill, of a capacity of 150 to 175 tons per day. This pulp will not be made into paper on the Canadian side, but will be pumped over into the Minnesota town under the river, and there made into news print to supply papers in the North-west States. The Company will establish saw-mills on both sides of the St. Francis. They expect to be ready to furnish power in September. The headquarters of the Backus & Brooks Co. are at Minneapolis.



PAPERMAKERS' DIRECTORY OF ALL NATIONS.*

The international character of this directory makes it particularly valuable in bringing into close touch with one another the different branches of the paper trade. It gives particulars of no less than between 4,000 and 5,000 mills, scattered throughout forty different countries. The editor in his preface refers to the general scarcity of pulp-wood and to the recently announced important change foreshadowed in Quebec Province. The 1909 edition of this prized directory has been brought thoroughly up to date and contains a good deal of additional detail as to names, makes of paper, number and width of machines, output, power used, telegraphic addresses, agents, etc. The Buyers Guide in the form of a classified index to commercial prospectuses, is another useful feature.

* Papermakers' Directory of All Nations (1909) containing the principal paper, pulp and board mills of the world. Cloth bound; 760 pages; 10s. 6d. net. Dean & Son, Ltd., 160a Fleet Street, London, E.C.

THE NEW UNITED STATES PULP AND PAPER TARIFF.

The following is the text of Schedule M. of the new United States tariff:—

406. Mechanically ground wood pulp, one-twelfth of one cent. per pound, dry weight: Provided, however, That mechanically ground wood pulp shall be admitted free of duty from any country, dependency, province, or other subdivision of government (being the product thereof), which does not forbid or restrict in any way the exportation of (whether by law, order, regulation, contractual relation, or otherwise, directly or indirectly), or impose any export duty, export license fee, or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge or license fee or otherwise), upon printing paper, mechanically ground wood pulp, or wood for use in the manufacture of wood pulp: Provided, further, That if any country, dependency, province, or other subdivision of government, shall impose an export duty or other export charge of any kind whatsoever, either directly or indirectly (whether in the form of additional charge, or license fee, or otherwise), upon printing paper, mechanically ground wood pulp, or wood for use in the manufacture of wood pulp, the amount of such export duty or other export charge shall be added as an additional duty to the duty herein imposed upon mechanically ground wood pulp when imported directly or indirectly from such country, dependency, province or other subdivision of government. Chemical wood pulp, unbleached, one-sixth of one cent. per pound, dry weight; bleached, one-fourth of one cent per pound, dry weight: Provided, That if any country, dependency, province, or other subdivision of government shall impose an export duty, or other export charge of any kind what-

soever, either directly or indirectly (whether in the form of additional charge or license fee or otherwise), upon printing paper, chemical wood pulp, or wood for use in the manufacture of wood pulp, the amount of such export duty, or other export charge, shall be added as an additional duty to the duties herein imposed upon chemical wood pulp when imported directly or indirectly from such country, dependency, province, or other subdivision of government.

407. Sheating paper and roofing felt, 10 per cent. ad valorem.

408. Filter masse or filter stock, composed wholly or in part of wood pulp, wood flour, cotton or other vegetable fibre, one and one-half cents per pound and 15 per cent. ad valorem.

409. Printing paper (other than paper commercially known as handmade or machine handmade paper, Japan paper, and imitation Japan paper by whatever name known), unsized, sized, or glued, suitable for the printing of books and newspapers, but not for covers or bindings, not specifically provided for in this section, valued at not above two and one-fourth cents per pound, three-sixteenths of one cent. per pound; valued above two and one-fourth cents and not above two and one-half cents per pound, three-tenths of one cent. per pound; valued above two and one-half cents per pound and not above four cents per pound, five-tenths of one cent per pound; valued above four cents and not above five cents per pound, eight-tenths of one per cent. per pound; valued above five cents per pound, 15 per cent. ad valorem: Provided, however, That if any country, dependency, province or other subdivision of government shall forbid or restrict in any way the exportation of (whether by law, order, regu-

lation, contractual relation, or otherwise, directly or indirectly), or impose any export duty, export license fee, or other export charge of any kind whatsoever (whether in the form of additional charge or license fee or otherwise) upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp, there shall be imposed upon printing paper when imported either directly or indirectly from such country, dependency, province, or other subdivision of government, an additional duty of one-tenth of one cent per pound, when valued at three cents per pound, or less, and in addition thereto the amount of such export duty or other export charge imposed by such country, dependency, province, or other subdivision of government, upon printing paper, wood pulp, or wood for use in the manufacture of wood pulp.

410. Papers commonly known as copying paper, stereotype paper, bibulous paper, tissue paper, pottery paper, and all papers not specially provided for in this section, colored or uncolored, white or printed, weighing not over six pounds to the ream of four hundred and eighty sheets, on the basis of twenty by thirty inches, and whether in reams or in other form, six cents per pound and fifteen per cent. ad valorem; if weighing over six pounds and less than ten pounds to the ream, and letter copying books, whether wholly or partly manufactured, five cents per pound and fifteen per cent. ad valorem; crepe paper and filtering paper 5 cents per pound and 15 per cent. ad valorem: Provided, That no article composed wholly or in chief value of one or more of the papers specified in this paragraph shall pay a less rate of duty than that imposed upon the component paper of chief value of which such article is made.

411. Papers with coated surface or surfaces, not specially provided for in this section, five cents per pound; if wholly or partly covered with metal or its solutions (except as hereinafter provided), or with gelatine or flock, or if embossed

or printed, five cents per pound and 20 per cent. ad valorem; papers, including wrapping paper, with the surface decorated or covered with a design, fancy effect pattern or character, whether produced in the pulp or otherwise, but not by lithographic process, $4\frac{1}{2}$ cents per pound; if embossed, or wholly or partly covered with metal or its solutions, or with gelatine or flock, five cents per pound and twenty per cent. ad valorem: Provided, That paper wholly or partly covered with metal or its solutions, and weighing less than fifteen pounds per ream of 480 sheets, on a basis of twenty by twenty-five inches, shall pay a duty of five cents per pound and 25 per cent. ad valorem; parchment papers, and grease proof and imitation parchment papers which have been supercalendered and rendered transparent, or partially so, by whatever name known, two cents per pound and ten per cent. ad valorem; all other grease proof and imitation parchment papers, not specially provided for in this section, by whatever name known, two cents per pound and ten per cent. ad valorem: bags, envelopes, printed matter other than lithographic, and all other articles composed wholly or in chief value of any of the foregoing papers, not specially provided for in this section, and all boxes of paper or wood covered with any of the foregoing paper, five cents a pound and thirty per cent. ad valorem; albumenized or sensitized paper or paper otherwise surface coated for photographic purposes, thirty per cent. ad valorem; plain basic papers for albumenizing, sensitizing, baryta coating, or for photographic or solar printing processes, three cents per pound and ten per cent. ad valorem.

412. Pictures, calendars, cards, labels, flaps, cigar bands, placards, and other articles, composed wholly or in chief value of paper, lithographically printed in whole or in part from stone, metal or material other than gelatine (except boxes, views of American scenery or objects, and music, and illustrations

when forming part of a periodical or newspaper, or of bound or unbound books, accompanying the same, not specially provided for in this section), shall pay duty at the following rates: Labels and flaps, printed in less than eight colors (bronze printing to be counted as two colors), but not printed in whole or in part in metal leaf, 20 cents per pound; cigar bands of the same number of colors and printings, 30 cents per pound; labels and flaps printed in eight or more colors, but not printed in whole or in part in metal leaf, 30 cents per pound; cigar bands of the same number of colors and printings, 40 cents per pound; labels and flaps, printed in whole or in part in metal leaf, 50 cents per pound; cigar bands, printed in whole or in part in metal leaf, 55 cents per pound; all labels, flaps and bands not exceeding 10 square inches cutting size in dimensions, if embossed or die cut, shall pay the same rate of duty as hereinbefore provided for cigar bands of the same number of colors and printings (but no extra duty shall be assessed on labels, flaps and bands for embossing or die cutting); booklets, 7 cents per pound; books of paper or other material's for children's use, not exceeding in weight 24 ounces each, 6 cents per pound; fashion magazines or periodicals, printed in whole or in part by lithographic process, or decorated by hand, 8 cents per pound; booklets, decorated in whole or in part by hand or by spraying, whether or not lithographed, 15 cents per pound; decalcomanias in ceramic colors, weighing not over 100 pounds per thousand sheets on the basis of 20 by 30 inches in dimensions, 70 cents per pound and 15 per cent. ad valorem; weighing over 100 pounds per thousand sheets, on the basis of 20 by 30 inches in dimensions, 22 cents per pound and 15 per cent. ad valorem; if backed with metal leaf, 65 cents per pound all other decalcomanias, except toy decalcomanias, 40 cents per pound; all other articles than these hereinbefore specifically provided for in this paragraph, not exceeding eight one-

thousandths of one inch in thickness, 20 cents per pound; exceeding eight and not exceeding twenty one-thousandths of one inch in thickness, and less than 35 square inches cutting size in dimensions, 8½ cents per pound; exceeding 35 square inches cutting size in dimensions, 8 cents per pound, and in addition thereto on all of said articles, exceeding eight and not exceeding twenty one-thousandths of one inch in thickness, if either die cut or embossed, one-half of one cent per pound; if both die cut and embossed, one cent per pound; exceeding twenty one-thousandths of one inch in thickness, 6 cents per pound: Provided, That in the case of articles hereinbefore specified the thickness which shall determine the rate of duty to be imposed shall be that of the thinnest material found in the article, but for the purpose of this paragraph the thickness of lithographs mounted or pasted upon paper, cardboard or other material, shall be the combined thickness of the lithograph and the foundation on which it is mounted or pasted.

413. Writing, letter, note, handmade paper, and paper commercially known as handmade paper and machine handmade paper, Japan paper and imitation Japan paper, by whatever name known, and ledger, bond, record, tablet, typewriter, manifold, and onion-skin and imitation onionskin papers calendered or uncalendered weighing six and one-fourth pounds or over per ream, 3 cents per pound and 15 per cent. ad valorem; but if any such paper is ruled, bordered, embossed, printed, lined, or decorated in any manner, other than by lithographic process, it shall pay 10 per cent. ad valorem in addition to the foregoing rates: Provided, That in computing the duty on such paper every one hundred and eighty thousand square inches shall be taken to be a ream.

414. Paper envelopes, not specially provided for in this section, folded or flat, if plain 20 per cent. ad valorem; if bordered, embossed, printed, tinted, decorated or lined, 35 per cent. ad valorem.

415. Jacquard designs on ruled paper, or cut on Jacquard cards, and parts of such designs, cardboard and bristol board, 35 per cent. ad valorem; press boards and press paper, valued at 10 cents per pound or over, 35 per cent. ad valorem; paper hangings with paper back or composed wholly or in chief value of paper, 25 per cent. ad valorem; wrapping paper not specially provided for in this section, 35 per cent. ad valorem; paper not specially provided for in this section, 30 per cent. ad valorem: Provided, That paper embossed or cut, die-cut, or stamped into designs or shapes, such as initials, monograms, lace borders, bands, stripes, or other forms, or cut or shaped for boxes, plain or printed but not lithographed, and not specially provided for in this section, shall be dutiable at 35 per cent. ad valorem; articles composed wholly or in chief value of paper printed by the photo-gelatin process and not specially provided for in this act, 3 cents per pound, and 25 per cent. ad valorem.

416. Books of all kinds, bound or unbound, including blank books, slate books and pamphlets, engravings, photographs, etchings, maps, charts, music in books or sheets, and printed matter, all the foregoing wholly or in chief value of paper and not specially provided for in this section, 25 per cent. ad valorem; views of any landscape, scene, building, place, or locality in the United States on cardboard or paper, not thinner than eight one-thousandths of one inch, by whatever process printed or produced, including those wholly or in part produced by either lithographic or photo-gelatin process, except show cards and panels, occupying 35 square inches or less of surface per view, bound or unbound, or in any other form, 15 cents per pound, and 25 per cent. ad valorem; thinner than eight one-thousandths of one inch, \$2 per thousand: Provided, That the rate or rates of duty provided in the tariff act approved July 24, 1897, shall remain in force until October 1, 1909, on all views of any landscape,

scene, building, place, or locality, provided for in this paragraph, which shall have, prior to July 1, 1909, been ordered or contracted to be delivered to bona fide purchasers in the United States, and the Secretary of the Treasury shall make proper regulations for the enforcement of this provision.

417. Photograph, autograph, scrap, postcard, and postage stamp albums, wholly or partly manufactured, 35 per cent. ad valorem.

418. All boxes made wholly or in chief value of paper or papier mache, if covered with surface-coated paper, 45 per cent. ad valorem.

419. Playing cards, in packs not exceeding fifty-four cards and at a like rate for any number in excess, 10 cents per pack and 20 per cent. ad valorem.

420. Manufactures of paper, or of which paper is the component material of chief value, not specially provided for in this section, 35 per cent. ad val-

On this the Paper Trade Journal of New York comments as follows:—

Notwithstanding the reduction of the duty on cheap news paper from \$6 to \$3.75 per ton and the provision for free entry of ground wood, we cannot see that there is any chance of either change becoming effective for some time. The reason for this doubt is the fact that the new paper and pulp schedules are to become operative only with those countries that do not impose any kind of a tax on wood, pulp or paper. Reference to the first section of Schedule M on page five of this issue will give the wording of the very lengthy and much qualified clause, which practically renders null the reductions that have been made in the duties.

As matters now stand, the only place that can benefit by the lower rates are Nova Scotia and New Brunswick, as these parts of the Dominion of Canada place no restrictions upon pulp wood or pulp. For the time being, therefore, the publishers can profit only to the extent of \$1.67 per ton on their paper,

provided any maker of news using pulp from either province is foolish enough to give his customers the benefit of his free pulp. There are no news mills in either province.

Until Quebec remits its stumpage dues on wood cut on crown lands there will be but little change from the Dingley rate of \$6 per ton; there will be a reduction of 25 cents per ton, as the retaliatory clause in Section 409 provides an additional duty of one-tenth of one cent per pound when the value of the paper is three cents or under. The operation of this retaliatory clause will make the duty on cheap news \$5.75 instead of \$6 until such time as the Canadian provinces wipe out all taxes on pulp-wood. As there is little chance that Ontario will change her settled policy of prohibiting the export of pulp-wood, the consumers of news can hope for no lower pulp or paper from that quarter. As for Quebec, recent developments in that province do not point to any change favorable to the publishers. At present Quebec remits 25 cents per cord on all Crown land wood that is made into pulp anywhere in Canada. This rebate has been construed as an export tax by our courts. While Quebec grants this rebate there will be no cheaper paper and pulp from that province, the pulp made from wood cut by the farmers being excepted.

From the above it will be seen that the publishers have not gained anything by their bitter campaign against the paper manufacturers. Instead of profiting to any extent they have fostered the campaign in Quebec for the prohibition of the export of its logs. Until this happens and the production of news is greatly increased in Canada the publishers can not hope to secure any benefit from their attack on the American paper industry. As this can not be brought about for at least five years, and as the attitude of Canada will meantime be less favorable to us, the complication cannot but result in higher prices for news paper. In time the publishers

may profit, but it will not be in the immediate future.

While the disturbance is on with Canada over the tariff duties American inventors and investigators will be busy, and will, no doubt, find a cheap substitute for spruce wood. With such a discovery the paper industry will remain on this side of the border—and those concerns that meantime go across to settle in Canada are apt to find their investment a total loss.

The Paper Trade Journal's editorial opinions in the previous week were not quite in the same tone. It then said under the heading "A Forecast of What Will Happen":—

Assuming that the duty on news paper will be \$3 per ton under the new tariff, speculation is in order as to what the consequences will be. As it is a well known fact that the news mills of the country have not made large dividends in the past ten years despite the protection of \$6 per ton and free entry of pulp-wood from Quebec, the question is not hard to answer as to what will become of them with half the protection and no more free wood. All the high cost of production mills are surely doomed as far as the news business is concerned. While they may continue to be operated for a time provided the expected revival in business materializes, they are certain to be abandoned, as the profit in running them was very small even under the protection of \$6 per ton duty. With the rate halved and the supply of Canadian pulp-wood cut off, as it will be in the near future, the less favored plants have got to give way. Even as manilla mills it is very doubtful if they could long survive, free pulp-wood being of prime importance to mills in that line also. It is therefore certain that the mills that have not made much money during the past ten years must be abandoned.

Just what to do with the old mills is a problem that is now occupying the attention of their owners. One solution

which awaits a number is the selling of the buildings and water powers for generating electricity. For such use there is a very strong demand, especially in the Eastern States. One big news manufacturing company has, it is said, already planned to sell its least profitable mills for this purpose. Others will no doubt do likewise.

With the old plants off their hands, the enterprising news making companies will then have to erect pulp mills in Canada in order to make use of their pulp woodlands in the Dominion. By shipping the pulp free of duty to their mills in the United States, it looks as if they might still pay dividends until such time as Canada decides to press its advantage one step farther and prohibit the export of pulp. That it will do this is considered likely, especially if the embargo on pulp-wood turns out to be a good thing.

But while the big companies that own limits may get along by making their pulp in Canada, the less fortunate, smaller mills will find their pulp costing them more money, as the pulp-wood dealers who buy from the Canadian farmers will naturally demand a higher price. Taking the Crown land wood out of the market can have no other effect, for a few years at least, than to increase the cost of pulp; when enough pulp mills are built in Canada to grind all the Crown land wood, then there may be some relief for the smaller mills. By that time, however, Canada may prohibit the export of pulp.



SAWDUST AND WHITE PAPER.

The Journal du Commerce des Vois has recently published a series of articles on the utilization of sawdust. Among the various employments of it described is as an ingredient of cardboard. As such, however, it is useless. It does not increase the weight or the strength of the board, and a large proportion of it is lost on the wires.

Twenty or thirty years ago in Germany, and perhaps also in Scandinavia,

a product was manufactured under the name of wood-flour from sawdust and waste from wood-grinding. The only preparation involved in making the "flour" was grinding the stuff rather finer than it was at first. This flour found a market with a few makers of wrappings and boards, but as, like the original sawdust, it did no good, and was in some cases clearer than waste paper (the chief raw material for wrappings and boards) its use was soon discontinued.

Quite recently however, sawdust has been successfully tried, not as an admixture to other raw materials, but in making white paper without the assistance of any other fibre. The sawdust is milled into pulp water, after having been bleached, and softened and opened out with caustic soda. The process is patented all over Europe.

The best results seem to have been got with poplar and pine woods, and the sawdust of these gives a strong paper excellently adapted for printing purposes. This seems to provide a more useful field for sawdust than any it has hitherto enjoyed. The sawdust is so extremely cheap that the making of the paper from it is highly remunerative, and great efforts are being made to produce sawdust-paper on a very large scale.



PULP AND PAPER MARKET.

Montreal, Aug. 7.

The feeling among pulp and paper men here is that the present dullness is to some extent due to the uncertainty which has prevailed up to the present regarding the final settlement of the tariff affecting the trade of the United States. Over and above this, however, dullness developed each year about this time so that there is nothing unusual about the situation, in this respect. The trade is not feeling at all discouraged, but, on the contrary, the general sentiment is of a hopeful nature, it being evidently the belief that business in all lines is improving, and that the pulp and paper trade will be among the earl-

iest to reap advantages. In fact, the wrapping and bag paper trade has been enjoying a better demand, probably, than was expected, and it looks as though there would be an improvement as time goes on not only in this respect, but all along the line.



MONTREAL DOINGS.

(Special to Pulp and Paper Magazine.)

Montreal, August 6, 1909.

The Rolland Paper Company held its annual meeting about the 20th of July and reported a satisfactory business during the year, considering the unfavorable conditions existing during a considerable portion of the year. Hon. J. D. Rolland presided. No results were made public.

That stumpage rates in New Brunswick will stand an advance is the opinion of the New Brunswick Railway Company which, at the annual meeting held at St. John, N.B., on the 5th inst., decided to increase the price 25 cents above that prevailing the past year. Robert Meighen was elected president, as previously; W. H. McLean, vice-president; Alfred Seely, secretary, W. T. Whitehead, land agent; and Lord Strathcona, F. S. Meighen, G. S. Conitie and John Turnbull, Montreal; H. H. McLean, St. John; W. T. Whitehead, Fredericton, and J. S. Kennedy and Samuel Thompson of New York were appointed directors.

The Dominion Newspaper Syndicate, Limited, has recently been incorporated under the Companies Act of Canada, by Messrs. Smith, Markey and Skinner, lawyers, of Montreal. The Company has a capital of \$20,000 and has acquired the business of the Canada Newspaper Syndicate, of Montreal, and will carry it on in future. It is claimed that the Toronto Type Foundry Company holds the controlling interest in the new syndicate, it, together with the McClure concerns, of New York, having had an interest also in the old Canada Syndicate. The latter went into liquidation after the last an-

nual meeting, the copyrights and good will being sold at public auction.

Although it is admitted that the St. Raymond Paper Company, which went into liquidation, here, some months since, has changed hands, no information will be given out by the liquidator as to the name of the purchaser nor the amount paid for the property. The liquidator, however, says that it is somewhat aggravating to learn that the water

(Continued on Page 238c.)



RAG AND PAPER STOCK MARKET.

During the past month the market for rags and paper stock have been very steady, so far as prices and trade are concerned. Nothing of consequence has arisen to disturb the even flow of events. Paper mills down around Holyoke have been nearly all closed down, but from present indications they are about to resume operations again. So far as the mills here are concerned, there has been very little change, demand being light throughout the month, owing mainly to the dullness among the mills. There seems to be a very fair movement among old paper shavings, but old bagging is exceedingly slow. The same remark applies to rag stock, generally, such as Nos. 1 and 2 satinettes, there being very little demand for this quality of stock.

Prices show no alteration this month, those to paper mills being as follows:

Shirt Cuttings—	Per 100 lbs.
White	\$4 50 to \$5 00
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings ..	3 00 to 3 50
Shoe rag cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75

(Continued on Page 50.)

COOKING SULPHITE PULP IN THE I. P. COMPANY'S MILLS.

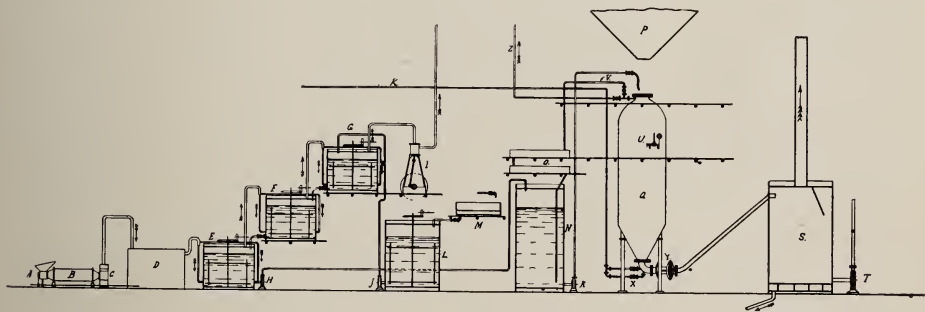
By C. E. Bandelin.

Some notes upon the methods for cooking sulphite pulp, as used in the I. P. Company's mills, may be of interest to the readers of this paper. The writer of this had, some months ago, an opportunity of studying them such as applied in the mill in Piercefield, N.Y. Every experienced sulphite man will find that there is practically nothing new in the method, but the writer thinks, however, that several points are well worth the attention of sulphite manufacturers, even if not new. He wishes, however, first to emphasize that this method is not to be recommended to manufacturers who wish to obtain a high grade of pulp, consequently for mills selling their out-

litharge-glycerine putty. The above mill had two digesters of about 40 tons dry pulp, and one of about 9 tons.

A wooden funnel was placed in the upper manhole when the digesters were to be filled, and the door in the bottom of the chip-bin P was opened. The acid was let in through the pipe from the pump R before the charging with chips was completed, and the time required for charging was remarkably short. (See reports of some cooks in the following:)

The acid was made according to "Stibbin's system," by means of milk of lime and SO_2 , obtained by burning sulphur in the rotary burner B. This burner was made of sheet iron, about 10 feet long and 4 feet diameter and was continuously fed with sulphur through a screw in the hopper A. B is a combustion chamber for the purpose



put. It however shows how the biggest manufacturer of sulphite pulp in the world makes his pulp, and if he prefers to use 12-14 per cent. sulphur, when the same, if not better results could be obtained with 8 or 9 per cent., nobody else certainly has anything to say.

The wood, mostly spruce, was chipped in the usual way, often quite raw. The chips were afterwards conveyed into bins, situated above the upright digesters. These were lined with two layers of acid-proof bricks and mortar, consisting of cement, silicate of soda and powdered silica, the completed lining being about 7-8 per cent. thick. The seams in the inside layer consisted of

of oxidizing and subliming sulphur. It consists of a cast-iron box, where the admittance of air can be regulated, and is filled with fire-bricks, loosely placed in rows. A cast-iron pipe takes the gas from the combustion chamber to the cooling apparatus D, consisting of a wooden box, filled with water through which leaden pipes are drawn. From here the gas is sucked to the lowest of the three acid-making tubs. They are vertical, cylindrical wooden tubs, about 12 feet diameter and 10 feet high, placed above each other as shown in the sketch, and without any protective lining. The stirrers and the gas and liquid travel in opposite directions,

but the system does not work continuously. A vacuum pump I, a triplex, belt-driven plunge pump effects a vacuum in the last and highest of the three absorption vessels G, which vacuum also, though in a less degree extends to vessels E and F, depending upon how high the liquor is standing in them.

The cooled gas usually holds about 14-16 vol. per cent. SO_2 at the entrance into E, where it enters through two pipes near the bottom. After having passed through E, it is sucked in the same way through F, where it meets a somewhat more alkaline liquor and finally through G, where it meets fresh milk of lime. The exhaust gas from the pump, however, often held considerable quantities of SO_2 .

A system like this, from the beginning handled with due care, ought not to cause much smell, but such was nearly always to be felt, and often to a nearly insufferable degree, depending partly upon leaks in pipes, etc., and partly because the gas went back out from the burner every time the pump was stopped, which was done, for instance, when the liquor in E had reached the desired strength. The ready acid was then pumped into a settling tank; the liquor in F was let down into E, the liquor in G into F, and fresh milk of lime was filled into G. All this required some time, if only short, and some SO_2 always found its way out into the rooms during the time the draft was stopped.

The lime is slacked in the box M, which has a false bottom to retain coarser impurities. The milk is first let down into a settling tank (not shown on the fig.) where it is left for a short time, in order to give coarser particles, sludge, etc., time to settle to the bottom, and is afterwards pumped over in the storage tank L, where it is continuously stirred. From here the pump J takes it to the system bank G when needed.

The ready acid, analysing for instance:

3.50 per cent. total SO_2
2.00 per cent. free SO_2
1.50 per cent. comb SO_2

(corresponding to 57 per cent. free of total) is pumped from the system tank E by means of the pump H to storage tanks, big, vertical, wooden vessels with inside acid-proof lining. The tank N, shown in the figure, only contains acid enough for one or two charges, and is used for the reclaiming of the gases from the digesters and for the treating of the acid. An average test of the acid, such as it was, when filled into the digesters, would be about

4.00 per cent. total SO_2
2.65 per cent. free SO_2
1.35 per cent. comb SO_2

(corresponding to 66 per cent. free of total) and its temperature seldom reached 50°C .

The most important, however, with this system is the manner in which the sulphurous acid is reclaimed. The digesters are completely filled with chips, and acid is pumped in to about half way up in the rounded top part. Steam is let in directly at the lowest part of the digesters by means of two steam pipes, of which the lower one is used for the actual cooking process. The valve on the pipe V is opened a little, as soon as the gauge shows pressure, and this valve is left somewhat open during the whole digesting process. The quantity of liquor in the digester is soon increased on account of condensation, and the most difficult point in the whole process is just to keep this valve enough open. Both gas and liquor leave the digester through this valve, and it should be kept just so much open, that enough gas and liquor are being let out, without letting the pressure sink. If it should not be opened enough, steam cannot come in and the temperature sinks although the pressure can remain high. The digesting process then takes an unreasonably long time, if it does

not completely stop. If the valve opened too much, too much SO_2 is lost and the acid is weakened. Burnt cooks are often obtained, if this is the case. It is, however, easy enough after some practice to hear, if the valve is enough open. If the forehead is held against the handwheel of the valve, it ought to be heard or perhaps rather felt, that both liquor and gas are passing through, and after some practice it is possible to judge, if only gas, or only liquor is steaming out and to regulate the valve accordingly.

This mixture of gas and liquor passes through the pipe V first to two cooling apparatus O, consisting only of lead pipes in boxes filled with cooling water. The condensed liquor, together with non-condensed gases is conducted through a lead pipe from the coolers down to the bottom of the tank N. It was impossible to keep the temperature even in this tank, on account of the different size of the digesters, but it probably seldom was much above 50°C .

The right moment to blow off a digester was found by means of successive titrations of the digester liquid, and the samples for this purpose were taken at U, where gauge, thermometer and test cocks were placed. The testing was executed in the usual way through titra-

10

tion with iodine, — strength, and the

100

right point used to be, when the liquor held $\text{O},06\text{-O},10$ per cent. SO_2 , depending upon size of digester, kind of wood, etc. The blowing-off, which was effected with the full pressure of the digester, 70-80 lbs. took only a few minutes, and often fresh steam was let in through the higher of the steam pipes at X, in order better to drive the pulp through the blow-off pipe and the valve Y, both of bronze, to the blow-pit S. There was one blow-pit for each digester, and they were cylindrical wooden tubs, big enough to hold two charges from one of the small digesters, and even some

more. They had a false bottom to retain the pulp, and the liquor was let out into the river. A sloping wooden partition wall opposite the inlet pipe protects the wall of the blow-pit from being too quickly destroyed by the hot liquor.

When most of the liquor has been drained off, the pulp is washed some times in the blow-pit and afterwards pumped by means of the centrifugal pump T to screens, etc.

There is no doubt, that by cooking in the way just described, a rather short time of cooking is obtained, sometimes 8-9 hours, but it has also great inconveniences. There is practically nothing new in the "system" and the writer made sulphite pulp some 15 to 20 years ago in Europe in about the same way with a cooking time of 9 to 10 hours. It is very difficult to keep all valves and connections tight; they are soon used up on account of the intensive work, and frequent, unavoidable exchanges, causing delays, occur. It can easily happen, that a cook is "burnt" on account of the low percentage of SO_2 at the end of the process, and if the cooking is not continued as long as possible, raw chips will remain in the pulp from the same cause. The cooks must follow each other as closely as possible, and there is little opportunity to look over the lining carefully, which ought to be done between each cook.

The charges were often not completely blown out before the men started to loosen the bolts at the upper manhole, and the different tours were always trying to obtain the shortest time of cooking and time between cooks. Only one man was employed per tour (8 hours) at the digester, and he was helped by the foreman, who had charge of the testing, and occasionally by extra help from other departments.

In the following are given some data from a cook with the big digester and also from a cook with a small one. It is to be noted, that all time is given in hours and decimals, not minutes.

Charge No.... (the big Dig.)

Acid test when filled:—

3.91 per cent. total SO₂

2.50 per cent. free SO₂

1.41 per cent. comb SO₂

= 63.9 per cent. free of total SO₂

Temperature when charged 42° C.

Time of cook 13.9 hours

Time between 2.1 “

Total time 16.0 “

After hours	Press. lbs. sq. in.	Temp. Co	% tot. S O. 2	REMARKS
1	13	60	—	Time between cooks 2.1 hours Delayed 0.7 on account of frozen water-pipe.
2	27	73	2.97	
3	40	77	—	
4	57	88	—	
5	60	105	2.10	
6	65	120	—	
7	70	130	—	
8	70	135	0.93	
9	76	140	—	
10	70	145	0.51	
10.5	70	145	0.45	Blown !
11	70	145	0.41	
11.5	70	145	0.40	
12	70	145	0.32	
12.5	70	145	0.21	
12.8	70	145	0.19	
13	70	145	0.15	
13.3	70	145	0.13	
13.5	70	145	0.11	
13.9	70	145	0.09	

No. (small Dig.)

Acid test:—

3.43 per cent. total SO₂

2.24 per cent. free SO₂

1.19 per cent. comb. SO₂

Temperature 26° C.

Time of cook 11.3 hours

Time between 1.7 “

Total time 1.3 “

After hours	Press. lbs. p. sq. in.	Temp. Co	% S.O.2	REMARKS
1	—	45	—	Time between cooks 1.7 h. Delayed 0.9 hrs. for cap elevator
2	20	50	2.43	
3	35	60	—	
4	47	70	—	
5	60	83	1.54	
6	—	110	—	
7	64	129	—	
8	65	133	0.70	
9	65	139	—	
9.5	65	139	0.5	
10	65	142	0.27	Blown !
10.3	65	142	0.19	
10.7	65	142	0.13	
11	65	142	0.10	
11.2	65	143	0.08	
11.3	65	142	0.07	



BRITISH COLUMBIA PULP COMPANIES' AMALGAMATION.

An important amalgamation of wood pulp and paper interests took place at a meeting at Victoria, B.C., when the Western Canada Wood Pulp & Paper Company, Limited, was absorbed by the British Columbia Pulp and Paper Company, the joint interests to be known in future as the British Canadian Wood Pulp & Paper Company.

The island company which has been absorbed by the mainland concern, owns 55,669 acres of pulp land at Quatsino. The property there also includes a 20,000 inch water record and sawmills, the subscribed capital being \$100,000. The amalgamated concerns intend to rush work at their properties at Port Mellon and Quatsino. At the former place the mills will be running full blast in five weeks' time, and writing, book, ledger, fibre, tissue, felting and roofing papers will be turned out. The subscribed capital invested in the mainland property is \$315,000.

At Quatsino a saw mill is at present ready for use, and work on the construction of a sulphite mill will be carried on rapidly. The pulp mill to be built there will cost \$100,000, and mechanical mill. \$350,000.

The British Canadian Company expects to find ample markets in the Orient and Europe, where there is an increasing demand for paper.

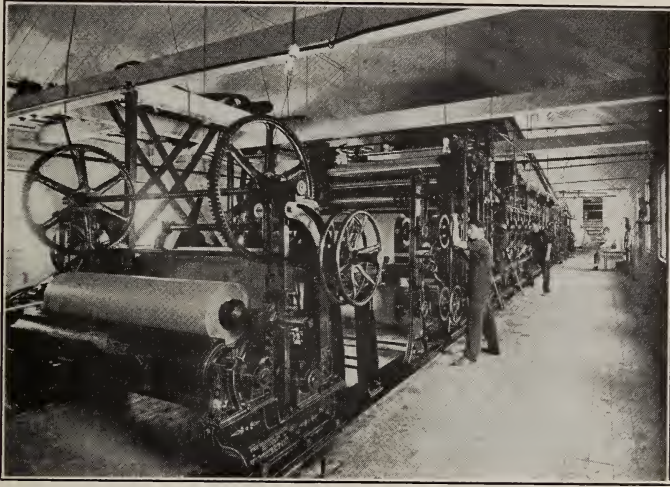
Both the companies which amalgamated were organized by Greeley Kolts,—Inland Sentinel Review, Kamloops, B.C.,

DON VALLEY PAPER MILLS.

The Don Valley Paper Mills, which for many years were owned by the Taylor family, and at which, by

to turn out the very best product in an economical manner.

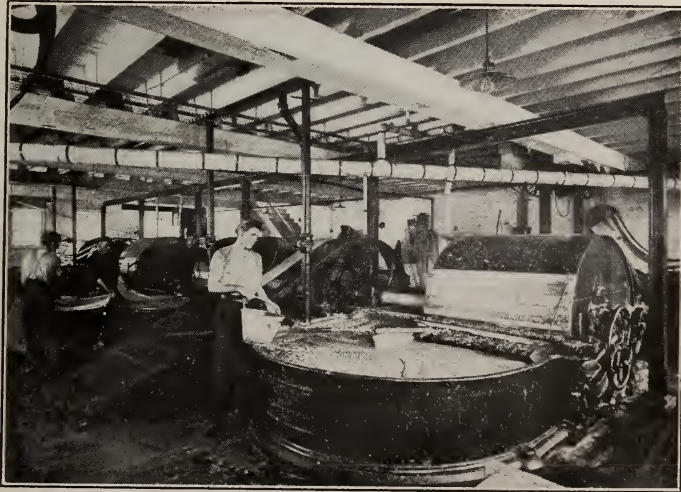
Mr. Davies and Mr. C. F. Ash, who has superintended the renovation of the mill in every detail are to be congratulated



Finishing End of Paper Machine.

the way, the first paper made in Canada was turned out, have now been extended and refurnished on a lavish but business-

on the admirable way in which the work has been accomplished. At every point there is to be seen some feature denoting



Beater Room—Coloring and Feeding.

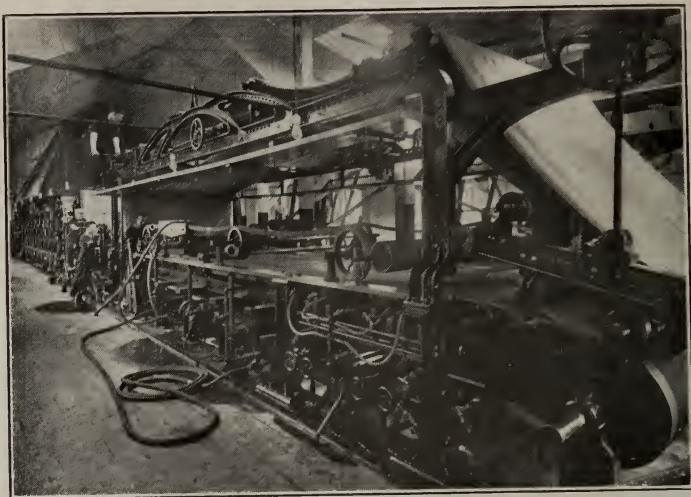
like scale under the proprietorship of Robert Davies. They restarted operations about a month ago, with up-to-date machinery and equipment of a class

careful thought either for the comfort and assistance of the employes, or the improvement or rapid handling of the product. The mill itself is beautifully situated

in the Don Valley, a few miles North-east of Toronto. There are seven buildings occupying a total length of about 350 feet. They are constructed of brick

pressure also sixteen stackpoints each with 50 feet of hose.

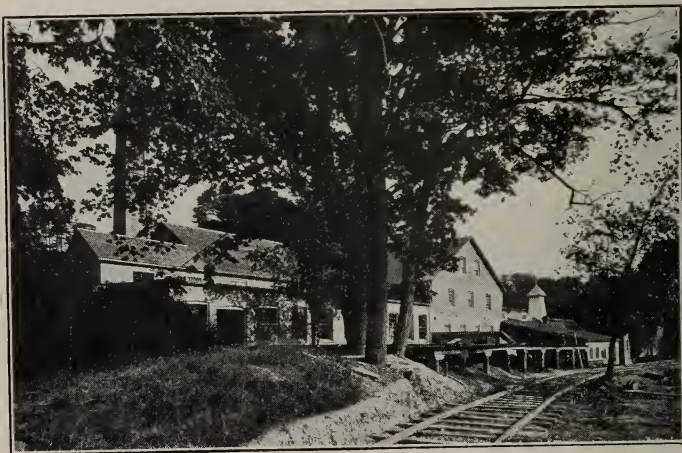
The Fourdrinier is practically a new machine having been completely rebuilt



Wet End of Paper Machine.

and cement and are of an average length of 40 to 60 feet. All the machinery is on bed-plate set in concrete, the depth gone down being about eight feet. The mill

by Rice, Barton & Fales, of Worcester, Mass. also lengthened by 15 feet, making 55 feet wire. The first belt is 96 feet long, and the second and third 42 feet



Mill From North, Showing Siding.

is heated by steam and lighted by electricity produced on the premises. For fire protection and mill requirements there is a Waterous pump with a capacity of 600 gallons per minute, under 100 lbs.

each. The careful thought of Mr. Ash in order to save time and labor is shown by the gap through the middle of the machine, the purpose of which is to obviate the necessity of walking around

the whole length of the same.. There are two stacks of calenders. The paper is wound out at end of machine with Warren double-winding winders. A feature, which catches the eye is the automatic oiler, made by Schofield & Holden, Toronto, giving oil to the bearings just exactly as needed. Power is provided by a variable speed engine with Gardner governor, and running from 60 up to 400 feet, so as to save the necessity of shutting down to change speed. There is also a constant speed engine for the pumps, screens, agitators, etc.

In the straining room there are two screens, one of them very fine for the extra fine grades of manila No. 1. Screens are in duplicate, so that changing from fine to coarse can be done instantly. The stuff pumps are by the Goulds Manufacturing Company, Seneca Falls, N.Y., the chests made of brick and cement. There are four 500 lb. beaters, by Bentley & Jackson, of Bury, England, also a refining engine. Power for above is provided from a Brown condenser engine of 150 horse-power. Among other machinery there is a rotary boiler for cooking stock, with a capacity of 3 to 4 tons. In the finishing and cutter room there is a compulsory four-shaft winder and a Hamblett cutter.

Room has been provided for a factory for making paper bags, with 30 to 40 machines. These include self-opening bag machines, also flats and squares. Attached is a lunch room for girls. It is expected that the bag factory will be ready for operation in about 3 months. In order to facilitate shipments of paper, and to bring in pulp, coal and other supplies, a siding has been built to the Canadian Northern Railway, which runs up the Don Valley. This will mean a great deal saved in labor, etc.

The mills are now running on Kraft papers, made from pulp specially imported from Sweden and on fine manila stock. Mr. Ash, to whom as stated above the credit for this model mill is due, has been in the business of paper making for forty years. He was with the

Don mill under the Taylor regime for 21 years altogether, and as a superintendent for 14 years. Previous to this for 19 years he was with the Napanee Paper Company.

The Pulp and Paper Magazine wishes all success to the mills under their present energetic and enlightened management, and in this we include both Mr. Davies and Mr. Ash.



MONTREAL DOINGS.

— (Continued from page 234.)

is so deep this season that it is several feet over the height of the dam, and is thus running to waste in large quantities while the plant of the company, is not in a position to take advantage of it whereas a year ago, when the Company was in great need of water and most anxious to get all they could in order that the plant might operate, they could not get any. He is not in a position to give out any details as to the future of the Company, but the general view among the trade here is that the purchasers, who ever they may be, would probably have taken full cognizance of the letter issued by the Company concerning the requirements of the plant, and would only have purchased with the full intention and financial ability to carry out these recommendations. These recommendations were referred to in the Montreal letter contained in the May issue of the Pulp and Paper Magazine, and will be found on page 157. It was assumed that the expenditure of \$20,000 on the installation of a larger number of grinders would secure, during the period of high water, the surplus pulp necessary to the continuous operation of the paper mill during the year and insure the profitable carrying on of the company's business.

It is understood that one pulp exporting firm, alone, has engaged freight for 2,000 tons of wet ground wood pulp or 1,000 dry for export to Great Britain this month.

From all that can be learned the Laurentide Co. is shipping an average of one car per day of paper to the United

States and 500 to 1,000 tons per month to Great Britain, South Africa and Australia. The next three boats sailing from this port for South Africa will carry 300 tons each from the same Company. Although trade is on the dull side just now, the Company's plant is in full operation.

It has been stated here that there is a dearth of water in the Northern portion of the United States as a result of recent dry weather. A number of paper mills have found it advisable to close down, taking advantage of the dull demand and the lowness of the water to make necessary repairs and to place themselves in a position to take advantage of any alteration in the situation later on. So far as Canada is concerned, there is a plentiful supply of water and no fear is felt that this year there will be any trouble from lack of power in that respect.

Word has just been received here today to the effect that the long drawn out tariff discussion in the United States has been brought to an end and that the signature of President Taft has been placed on the Payne Bill, thus making it law.

Up to the present, no one in Montreal seems to be fully informed as to the text of the Act as applied to paper and pulp. From the fact that the fight was eventually between those favoring \$2 per ton on paper and those favoring \$4, as against the old tariff of \$6, and that something in the nature of a compromise was reached at \$3.75 per ton, the general idea entertained here is that \$3.75 was the figure eventually decided upon. This, of course, only applies to one grade of paper, and nothing appears to be known of the other grades as yet. In the old tariff, the duty on printing paper, valued at not more than 2c per lb., was three-tenths of a cent per lb.; that on paper valued at 2 to 2½c, was four-tenths; valued at 2½c to 3c, it was five-tenths; 3c to 4c was six-tenths; 4c to 5c was eight-tenths, and paper valued over 5c per lb. carried a duty of 15% ad val.

The \$3.75 doubtless has reference to

the lowest grade of news mentioned, inasmuch as it was that which formerly carried the duty of three-tenths of a cent per lb., or \$6 per ton. From this it is manifest that a considerable reduction has been made. This is the paper in which Canada is principally concerned at present, exports of it to the United States being already large and showing almost monthly increases.

As to ground wood pulp, the belief is expressed here that this will in future go in duty free. Some pulp men fear that something in the nature of a countervailing duty may be imposed, depending upon the imposition of something of a similar nature by Canadian provinces on exports. The opinion was expressed that in that case Sir Lomer Gouin would remove any restrictions which might place the exporter of ground wood pulp in this country under disadvantage.

This view was combatted by others who said that Sir Lomer had already made his pronouncement upon this subject, and was very unlikely to alter it, in fact, that he would not alter it. It is interesting to recall what was said by the Premier of this Province:

"Perhaps some private interests may suffer, but we think that the great majority, the mass of the population, will benefit by it, and it is because we seriously trust in this, that we revise this tariff, inserting a clause to the effect that all pulp wood taken from our national domain cannot leave our territory before being made into pulp here." This remark applied to Crown Lands, only, and Sir Lomer proceeded to say that when the licenses to wood-cutting rights on the limits expired the rate for them would be increased.

It might be said that out of the many pulp and paper men spoken to regarding the new tariff, so far as it is apprehended, there were practically none who did not express satisfaction with the new conditions of affairs.

WANTED. — First-Class Machine Tender. Don Valley Paper Mills, Toronto.

NEW POINTS OF PAPER TESTING.

In various branches of the paper industry efforts have of late been made to sum up recent improvements and discoveries. As illustrating the salient points of the subjects handled, a brief recapitulation of the main features of Professor Herzberg's paper on "New Points of Paper Testing in 1908" will doubtless prove of interest. Among the chief divisions of the paper are: Raw Materials, Kaolin, Shortening of Fibres in Grinding, Moisture of Pulp, Sampling of Pulp for Moisture, Fineness of Fibres in Pulp, Filling Substances, Strength of Sizing and Coating, Transparency of Paper, Absorbent Properties of Blotting Paper and Copying Paper, Absorption of Moisture and Water by Paper, Parchment Paper, Tests for Folding, Strength of Paper, Tests of Paper Cuttings, and, finally, Tests of the Durability of Printing Paper.

Commenting upon the tests reported by Herr Belani, the absence of some important ingredients of paper manufacture is referred to. Besides wood pulp, straw pulp, rag pulp, ground wood, rosin, sulphate of alumina, chloride of lime, dyes, casein, gum arabic, beeswax and paraffin (twelve in all), various other important components are named by Professor Herzberg, such as water, caustic lime, soda, animal glue, starch, filling substances, etc. A more thorough treatment of this question is advocated.

In place of the usual method of testing the purity of kaolin by means of oil of turpentine, Dr. Klemm has perfected a process by which glycerine is used for the purpose. In this way difference of color in kaolin and other filling substances are brought out.

From experiments reported on by R. W. Sindall, it was found that by continuing the grinding process for thirty-seven hours instead of for eight hours, the extent of lengthening in the fibres was reduced from 1.6 mm. to 0.56 mm. (0.062 inch to 0.022 inch).

Dr. Schwalbe has proposed distillation with petroleum, by which means the moisture passes off with the oil into a measuring tube. Professor Herzberg considers this distillation process is not compatible with the drying of large quantities of pulp, as required for industrial tests. He remarks that the present appliances at the temperature of 100 degrees to 105 degrees C. allow of easy operation and control. These drying stoves are heated by steam or electricity.

R. W. Sindall devised a set of rules for the uniform drawing of samples, which formed the basis of the proposals under this head, agreed upon for the protection of buyers and sellers by the British Pulp Association, in conjunction with the English Papermakers' Association. According to regulations of a minutely precise character, triangular samples are drawn from a number of sheets in such a way as to ensure getting a strictly accurate type. The wish is expressed by Professor Herzberg that the German associations interested in the subject should endeavor to introduce similar regulations for sampling pulp.

While the qualities of pulp used only to be ascertained by practical experience, the "sediment tester," invented by Dr. Klemm and made by Schopper, of Leipzig, has proved a valuable aid to paper manufacturers in their tests of pulp.

The rules for the testing and purchase of filling substances prepared by Herr Belani were published by the Society of the Cellstuff and Paper Chemists' Association, but were not considered to fully cover the ground.

For the determination of the presence of caseins the need is mentioned of a reliable process, neither of the methods now in use being entirely satisfactory. Reference is made to the new process of Cross, Bevan and Briggs for the quantitative definition of animal glue or sizes in paper. An alternative process by Kjeldahl is also mentioned. Other papers on the determination of rosin, animal glue and casein are criticized as containing no elements of novelty.

In dealing with this subject, during the year 1908, Dr. Klemm discriminated between the resistance of sizing to ink and the manner in which it is affected by other influences, such as oil, alkaline solutions, etc. In the course of his paper on the subject he described the processes by which these various tests could be made.

Tests are described for determining the strength of the coating on paper by rubbing, as well as by the use of ink and some adhesive substance.

An interesting series of tests was described by Dr. Werner Schmidt. He distinguished between the property of transmitting light (represented by a percentage) and the possibility of reading print upon the paper.

This subject was treated in detail by Beadle and Stevens, the time allowed for absorption corresponding with that of Klemm's process for the same purpose.

Professor Herzberg remarks that there is at present a lack of definite and generally accepted principles for the testing of copying paper. As a merchant wants to keep the copies of his letters in legible condition for at least ten years, the need has been apparent for a certain minimum strength of paper, to be determined by comparison with approved standards. A minimum and a maximum degree of absorption is moreover needed, as the paper must be sufficiently absorbent to take the ink, but not to such an extent as to cause blurring. A series of tests more or less complete for the determination of the last-named point are described.

In a series of tests for determining the absorption of atmospheric moisture by paper (after being suspended for seventy-two hours in air at a relative humidity of 85 to 90 per cent.), it was demonstrated that the degree of sizing is of secondary importance, while the method of grinding exercises considerable influence on the results. Papers of the character of parchment papers absorbed at a normal degree of humidity about 10 per cent. of moisture, and at 90 per cent. about 15 per cent. These results, however, are not

of general application. The results of ten samples of wrapping paper at 85 to 90 per cent. humidity showed an absorption of 12 to 14 per cent. The duration of the tests was perhaps needlessly long, and by frequent weighing might have been found susceptible of reduction. Other tests dealt with the direct absorption of water by paper.

Tests were made of the strength and air-tight properties of parchment paper. The resistance to air can best be determined by actual pneumatic pressure, while the test for the paper being grease-proof could be made with oil of turpentine.

The Material Testing Station at Gross Lichterfelde has made various tests with the Schopper folding tester, which will likewise be used in further experiments. Professor Herzberg warmly recommends it to all paper manufacturers making their own tests for strength.

The experiments made by R. W. Sindall were referred to in detail and their results quoted. The samples were taken both longitudinally and transversely; likewise at an angle. The tests of hand-made papers displayed more uniformity in results than was the case with those made by machine.

In an interesting case quoted a contract has been made by a paper factory for the purchase of a quantity of paper cuttings, "free from surrogates." This meant pure rag paper, but the article delivered was 45 per cent. esparto, 40 per cent. wood pulp and 15 per cent. cotton.

Prominence is given to the efforts made by the Material Testing Station directed to the use of materials for printing paper, insuring the durability of the product. Among the results of these measures is the decision of the Prussian Academy of Science to print its bulletins and other literary matter on paper specially chosen for the purpose in view.

The above brief summary of the main features of Professor Herzberg's report is necessarily in the nature of an index, grouping the facts in their natural sequence. It is of interest to note that

Professor Herzberg will make this report annually. Specialization is the order of the day in German technical circles. With such experts as Prof. Dr. Schwalbe and Herr Alfred Lutz dealing with periodical literature affecting chemical and mechanical processes of the paper industry, and with Dr. Klemm and Professor Herzberg handling recent chemical discoveries and tests in general, there is apparently an organized effort being made to disseminate in the German paper industry the fullest technical information affecting that branch of manufacture.



MOULDY ROLLER FELTS.

It is sometimes observed that the felts on rollers begin to crumble after a time, even when they have received no mechanical injury. This crumbling usually begins at the ends of the rollers, but sometimes in the middle of the felt. It is due to mould, i.e., to fungoid growths developed on account of the felt being continually moist. This growth feeds on and destroys the wool fibre. The reason why the effect usually appears first at the edges of the felt is that there the felt is liable to come into contact with iron-rust, which greatly promotes the development and growth of the mould. The time taken to produce mouldiness depends also on the character of the wool used in making the felts and on the composition of the paper which comes into contact with them. Some papers yield substances to the felt which afford an excellent nutriment, or they may bring fungus spores to it as well as the food they want. For example, if acid or alkaline materials are pressed long between felted rollers, the felt is more likely to go mouldy than when neutral substances only come into contact with it.

The writer was once in a paper mill where there was special trouble with the couch rolls, the lower one requiring frequent re-felting through mouldiness.

The web contained nothing at all likely to injure the felt either chemically or mechanically. At the same time there was nothing in it likely to kill fungi. The factory worked by day only, and the felt was never rinsed, but got no water except what it squeezed out of the web. The remedy is to turn the hose on to the felts at every possible opportunity. It is only when the substances brought to it by the web are able to accumulate, portions of them, in spite of the continuous fresh supply, remaining in it for weeks on end, that the fungi are able to develop in sufficient extent to do their damaging work. It is perhaps unnecessary to say that the danger of mouldiness is greatest in hot weather, and practically absent in very cold seasons. As a rule the hose is never used except to do the first wetting when a new felt is put on. Quite independently of any risk of mouldiness, the felts should be cleaned more often than is usually the case, for they accumulate ordinary dirt as well as fungus spores and fungus food. Hence, in the interest of the color of the paper, the hose should be used on them at all times when the work is not thereby interrupted, or even if a little interruption is necessary to enable the cleansing work to be done. It will be found that wherever this trouble with mould occurs, the life of a felt will be doubled or trebled if the hose is used on it with judgment. The use of germicides is objectionable in many ways, and their cost alone is enough to prevent their use, especially when clean water will keep the felt right.



TESTING OF LOADING MATERIALS

The whiteness of china clay is estimated by comparison with a standard specimen. For this purpose the two bodies compared are either made into equally thick pastes with glycerine, or are spread out smoothly in the dry state. Sand and

particles of mica are tested for by stirring a sample up with water, when they will settle much sooner than the china clay itself. Iron should be tested for with ferrocyanide of potassium. For this purpose add dilute hydrochloric acid, filter and test the filtrate with the prussiate, when, if iron is present, a precipitate of prussian blue will be formed. Ultramarine (sometimes added to correct yellow china clay) and organic fibres are detected by the microscope. Kaolin containing soluble lime salts should be rejected. To detect them the china clay is stirred up with water, filtered, and the filtrate tested with ammonia and oxalate of ammonia, which will give a white precipitate if the filtrate contains lime. The fineness of the china clay is estimated by putting it through sieves and seeing the finest it will go through. The amount of moisture should also be determined by the loss of weight on drying at 100 deg. C. With Bohemian china clay it should not exceed 5 per cent., but 12 per cent. can be allowed in English. The loss of weight on ignition should average not more than 12 per cent., and shows the amount of organic matter present.

Whiteness of talc is determined as for china clay. The mineral impurities most important to look for are gypsum and carbonate of lime. The addition of dilute hydrochloric acid causes an effervescence if the latter salt is present. Filter, and add dilute barium nitrate to the filtrate. The production of a white precipitate shows gypsum. Mica is best detected by its glittering when the sample is looked at with the light falling on it at varying angles. As regards fineness, the whole should pass through a two-fifths of a millimetre mesh. The normal loss on ignition is about 4 per cent., the amount of moisture the same.

Test whiteness for asbestine in the same way. Test for gypsum, lime and ultramarine as above. The little rod of which the product is composed should be about 80 millimetres long; the moisture averages $1\frac{1}{2}$ per cent., the loss on ignition $5\frac{1}{2}$ per cent.

For gypsum the test whiteness is as above. Test for chalk and ultramarine as above, and also for calcium sulphide. In the presence of the last body the gypsum evolves sulphuretted hydrogen when treated with dilute hydrochloric acid. This gas blackens lead paper, and if in any considerable quantity is recognized at once by its characteristic odour. All the gypsum ought to pass through a sieve with a .015 mm. mesh. The moisture in gypsum is about 21 per cent.

Test for whiteness of starch on a sheet of white paper, and reject any sample showing the least trace of yellow. Test for iron, mica and sand as above. Adulteration with mineral matter is shown by a high percentage of ash, the normal being about 0.6 per cent. Air-dried starch contains about 18 per cent. of water, "green" starch 35 per cent. or more. Protomol, an adulterant obtained from rice husk waste, is detected under the microscope.

In respect to gelatine a 5 per cent. solution made at 45 deg. C. should be colorless or nearly so.



SYRUP OF STARCH FOR PARCHMENT PAPER.

According to a communication from the Biological Laboratory of the German Starch Association, the ordinary process of parchmenting makes a product of a horny character in dry air, becoming brittle at a high temperature, being therefore unsuitable for use as wrapping paper. To attain the degree of suppleness called for in the later, the parchment paper should, after its manufacture, be saturated with dissolved organic or inorganic substances which are not themselves volatile in the air, and which have the property of retaining a permanent degree of moisture, absorbed in the form of vapor.

The best known substances for the purposes intended are: Organic, glycerine and syrup of starch, and inorganic,

chlorides of calcium and magnesium. In view of these inorganic substances affecting the taste of provisions, it is remarked that they are or should be excluded from consideration. No complaints have been made of the use of glycerine, while the employment of syrup of starch has met with criticism. The latter arose from proceedings before the Criminal Tribunal of Göttingen for contravention of the German law by selling butter permeated with mildew germs. Expert testimony proved that no blame attached to the seller, who was acquitted. The parchment paper having, however, been impregnated with syrup of starch, the latter became the subject of opposition. This method of impregnation was then new and not generally known, but on the theory quoted that butter is teeming with germs, to the development of which syrup of starch is normally favorable, a prejudice was created against the use of the latter substance.

With the view of ascertaining by practical tests whether the necessary theoretical conditions are present for the development of the germs in question when butter is wrapped in parchment paper impregnated with syrup of starch, a series of experiments was undertaken by the Biological Laboratory of the German Starch Association. These resulted in the absence of visible germs after butter had been exposed for six days to the action of parchment paper impregnated with syrup of starch or glycerine. Butter exposed to the air without such protection had in six days developed germs in vast numbers. The final verdict of the Laboratory was to the following effect:—

"We consider parchment paper made with syrup of starch as thoroughly suitable for use in wrapping greasy substances and provisions."



NOTES ON STRENGTH OF PAPER.

It has been observed that paper made on a long wire machine with ordinary rope drive, with eight cylinders, from

pure sulphite pulp gave stronger paper than a 12-cylinder machine with double-rope drive using the same pulp, the tensile strength of the first paper being about 10 per cent. greater than that of the second.

A belt-driven machine with only six cylinders gave somewhat better results than even the 8-cylinder machine. The reason lies in the quiet working of the first and third machines. The vibration due to the double-rope drive loosens the cohesion of the web. Another fact noticed in the same mill was that a soda kraft paper made on a 1-cylinder machine with short but very greasy pulp was equal in tensile strength along and across the web.

Longer fibred pulp on the same machine gave a paper stronger in the direction of the length of the web than at right angles to it, until some white, short mechanical pulp was added, when the difference disappeared almost entirely. The reason is that long fibres tend to arrange themselves parallel to the length of the web, thereby increasing the tensile strength of the paper in that direction, but not in the other. Short fibres arrange themselves indifferently, so that the more short stuff is used the less the strength of the paper varies in different directions at other times.

Cotton-wove belting passing over conical pulleys necessarily suffers considerably from the use of the forks, and should, therefore, be of the best possible quality, so that they shall not be worn out too quickly. The forks themselves wear by the friction against the belting, and if any rough places are formed they soon cut the strap. Hence the forks should be systematically and regularly examined. Belts should never be put on by hand or without the use of a rope. Proper tools for the purpose should always be at hand.



WORLD'S PRODUCTION OF PAPER.

Franz Krawany, director of the Paper Union of Vienna, has compiled statistics

showing productive capacity of the various papermaking countries. It gives total annual production of paper in the world as 8,000,000 tons. Of this quantity 55 per cent. is produced in Europe. Germany accounts for 17 per cent.; England, 11 per cent.; France, 7 per cent.; Austria-Hungary, 5 per cent.; Russia and Finland, $3\frac{1}{2}$ per cent.; Sweden, 3 per cent., and Norway, 1 per cent.

Of 43 per cent. credited to America, the United States produces nearly 40 per cent. and Canada nearly 3 per cent. Consumption per head of population in Europe is 10 kilograms, or about $22\frac{1}{2}$ pounds. For England the consumption is 25 kilograms per head; Sweden, 24 kilos; Finland, $23\frac{1}{2}$ kilos; Germany, $19\frac{3}{4}$ kilos; Norway, 16 kilos; Switzerland, 15 kilos; Holland, $14\frac{1}{2}$ kilos; France, 14 kilos; Austria and Belgium, 11 kilos, and so on downward to Borneo which consumes only one-half kilo. Canada has the greatest consumption per head, at $28\frac{1}{4}$ kilos, and the United States is fourth, at $22\frac{1}{2}$ kilos.

Assuming that the population and consumption of paper per head will increase during the next ten years at the present rate, it is calculated that 1,000 more paper machines will be at work at the end of that time and that the world's production will have increased by 25 per cent. Whether this increase will be restricted by a deficiency of the raw material, especially of wood, remains to be seen. The world's production of mechanical wood pulp is, roughly, 3,500,000 tons; that of chemical wood pulp and straw pulp is 3,250,000 tons.



FLAX STRAW FOR PULP.

In an article in the *Echo Agricole*, M. H. Blin says that flax straw, which was considered to be either entirely without value or useful for agricultural purposes only until quite recently, is now accepted as furnishing good raw material for paper making.

Flax pulp to be used in the manufacturing of paper is now sold in England at about £40 per ton, and the straw at £5 10s. Three tons of straw would give a ton of dry pulp. The relatively high cost of the pulp is due to the fact that a somewhat expensive plant is required. The manufacturing expenses are also heavy. It is computed that a capital of £8,000 is required for a factory making half a ton of pulp daily. Nevertheless, the profits may be considerable.

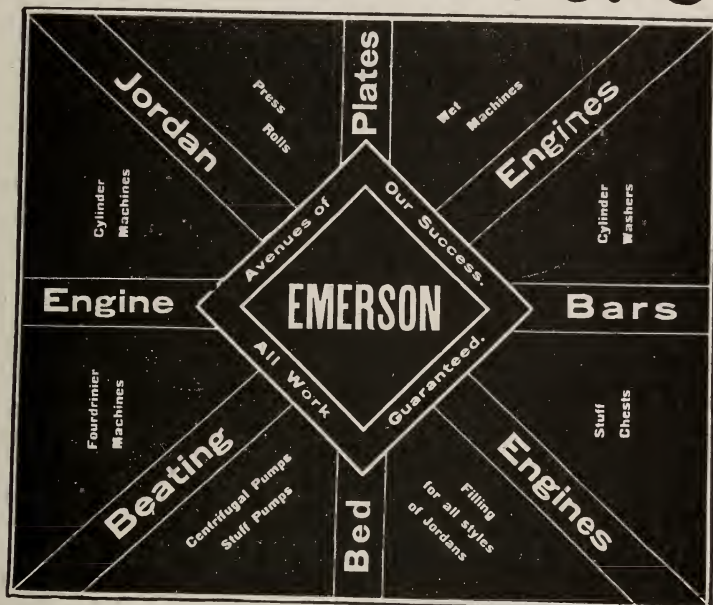
The best quality of pulp is made by treating the straw direct. That made from old linen rags is inferior, as the fibre has invariably been damaged in making it into cloth, and during the wearing.

The straw is cleaned and freed from rotts and also from all plants not flax. At Tunis, where flax pulp has been made for paper since 1906, the pulpers pay about 30s. per ton for the straw.

The first step in the pulping process consists in crushing it between the combs of a conical drum revolving at 200 turns a minute. The shape of the drum causes the straw to travel toward the exit, while a strong current of air sweeps dust and debris in the opposite direction. The straw is then chopped up in a chaff cutter into pieces about a third of an inch long, which are subjected in an autoclave to the joint action of air and steam at six atmospheres pressure. To ret the flax; that is, to free it from gums, resins and other foreign matter, the pectose of the stalk is transformed in the boiler into pectic acid, which is known as flax grease, and imparts suppleness and brilliancy to the fibre. On leaving the boiler the pulp is repeatedly beaten and washed with solution of carbonate of soda and then bleached with chlorine.

M. M. Conston, an agricultural engineer of Rivet, in Algeria, who has thoroughly studied the Tunisian flax pulp industry, considers that good profits can be obtained from flax straw as a raw material for paper. It has hitherto been useless, even as litter for cattle, and is usually left in the fields or burnt.

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WOOD PULP AGENCY.—Advertisers, who possess extensive storage accommodation, with Railway Siding, on the North-east coast of England, and in established connection with Paper Mills, are desirous of taking an agency for the sale of Wood Pulp. Terms, etc., in strict confidence, by letter in first instance, to Box 3, Pulp & Paper Magazine.

THE TROUBLE IN SWEDEN.

The employees in Swedish pulp mills who struck work a few weeks ago owing to a reduction in their wages show no disposition to agree to the employers' terms, and the trouble is spreading from the sulphite and sulphate mills to those manufacturing mechanical. At several of the mills the lock-out has now been in force about eight weeks. These mills produce some 300,000 tons of pulp per year, or over half the average annual production of Sweden. According to latest reports the trades unions in nearly all branches of industries in the country, as a result of the lock-out at the pulp mills, are about to declare a general strike. In Great Britain the effect of the lock-out is now beginning to be felt, the majority of the mills having had at first heavy surplus stocks on hand, but these having now been pretty well cleaned up.

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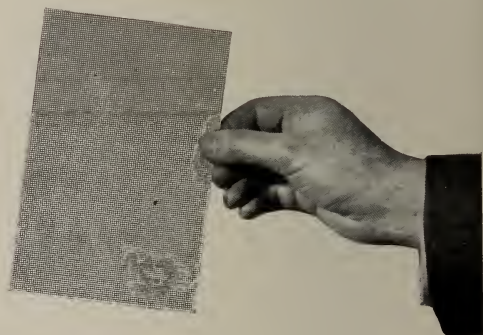
The Pneumatic Save-All

Some Reasons for its Notable Success

In the last issue of this magazine we described the action of the Pneumatic Save-All. We spoke of the fine screens used to cover the cylinder mold and explained that their use was rendered possible only by our patented Pneumatic Action.

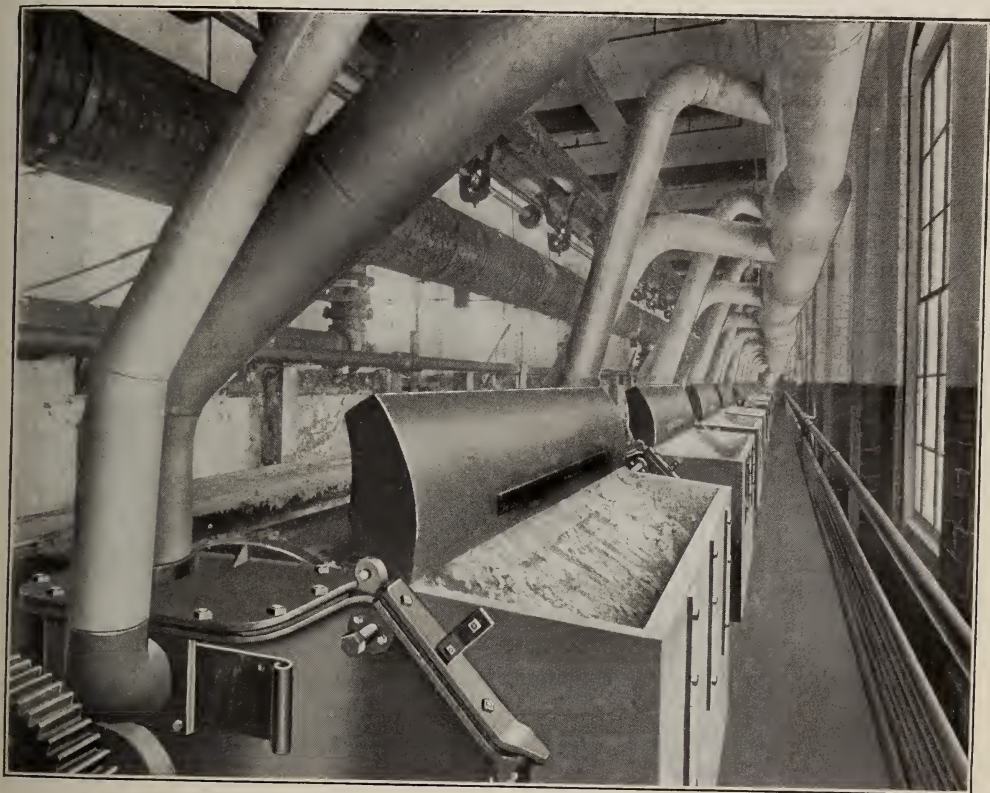
We show here a small sample of an actual screen taken from a Pneumatic Save-All. The engraving has been so arranged as to show the actual size of the little squares in the screen (No. 100) although the hand is shown reduced, to save space.

The little spaces between the wires in this screen *are about three times as small as could be used in an ordinary pulp thickener* and yet this screen is only of average fineness for use on the Pneumatic Save-all. Hence, while the former machine can barely save one third or one half of the waste (when used for this purpose) our Save-all saves from 75 per cent to between 90 and 100 per cent, depending upon the screen used and the conditions under which it is run.



We could not use such fine screens if we employed couch rolls or "doctor blades" or any other device to rub or scrape the screen. *But we do not. Nothing touches the cylinder covering in this Save-All but pulp and water and air, compressed at one point, rarefied at other points.*

We have prepared a series of microphotographs of screens and fibres to indicate just what occurs in this device. These show clearly that the finest of the fibres are saved, no less than the long and coarse. *Copies of these are sent on request.*



The engraving illustrates a row of Pneumatic Save-alls installed in a prominent mill. The reclaimed fibre is clearly shown passing down the deflector. It has been forced off onto this deflector by a blast of air supplied from a blower through the piping shown. *Save-alls thus installed often reclaim several tons each per diem, of perfectly good stock, and at an operating cost of a few cents per ton.*

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(Continued from page 234.)

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* * *

PULP AND PAPER MARKETS.

Toronto, August, 7, 1909.

The usual midsummer dullness is perceptible in the paper trade. At the same time, however, its tone is quite optimistic. The rapidly maturing crops, particularly in the West, from whence nearly all the reports are very glowing, is giving a feeling of confidence which cannot help but bring about good business conditions even though at present these may be on the dragging side. News paper is a little firmer than it was. Other lines show but little change. Pulp continues quite dull at about \$17 at the mill, but sellers are not anxious as the usual fall shortage in the United States is anticipated. The stoppage of manufacturing in Sweden should give rest in Great Britain to a stronger demand for Canadian pulp. Already in New England and Wisconsin complaints are heard of the low water. Sulphite is held around \$40.

**BRITISH MARKETS.**

Chemical Wood Pulps.—In the absence of transactions it is difficult to make any statement about the market, reports World's Paper Trade Review. The stoppage at some mills in Sweden, if it goes on long, must have some effect, but as prices are probably below the cost of production at many mills, it is likely

that stoppages would have taken place in any case before long.

Mechanical Wood Pulps.—In the Mechanical market there is little change; prices show no evidence of a decline.

Trade runs on smoothly with a better demand, stocks are less and prices remain unaltered. Business moderate at steady prices.

There is very little activity experienced in foreign rags as regards new business.

Chemicals.—The demand shows some slight improvement and prices keep firm. Ammonia Alkali, 58 per cent., is offered at £4 10s.; Caustic Soda, 76 and 77 per cent., £11; Bleaching Powder (soft wood), £4 7s. 6d.; Soda Crystals, £2 17s. 6d.; Salt Cake, £2; and Recovered Sulphur, £5.

**PAPER-MAKERS OF THE UNITED KINGDOM.***

This well-known directory is now to hand for 1909. The chief features of the new edition are that the lists of paper-makers under all the various headings have been carefully authenticated and revised up-to-date. There is also a re-arrangement of the List of Trade Designations used for papers, stationery, cards, etc., which is now divided into two sections, viz., Actual Watermarks and Trade Names (not actual watermarks), a feature which should be of great value to printers, stationers and paper buyers generally. A summary of Paper Trade Customs and a classification of advertisers, forming in itself a complete directory of paper mill engineers, purveyors of raw materials, paper mill supplies, etc., are also useful features.

*Directory of Papermakers of the United Kingdom, published by Marchant Singer & Company, 47 St. Mary Avenue, London, E.C. Price, 1s. 4d. net, post-paid in United Kingdom; 1s. 7d. abroad.

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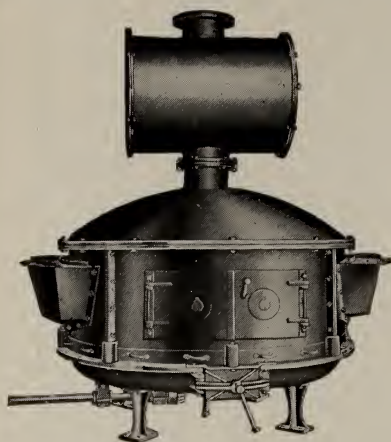
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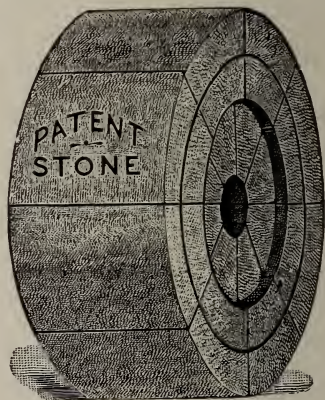
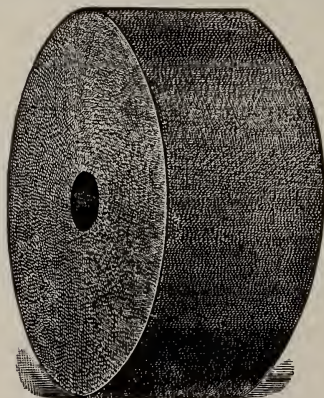
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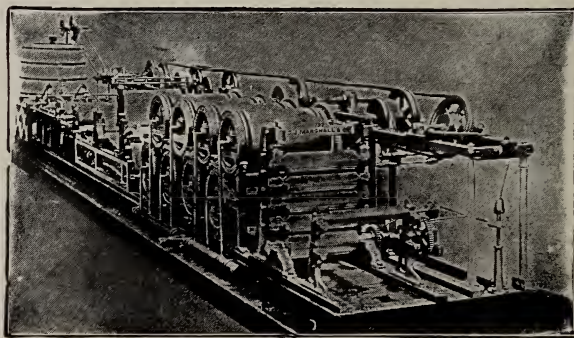
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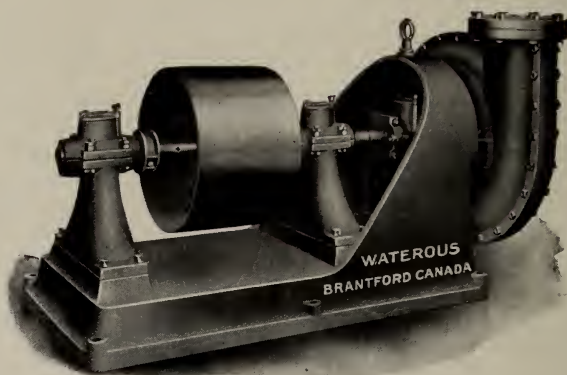
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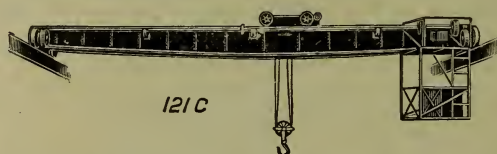
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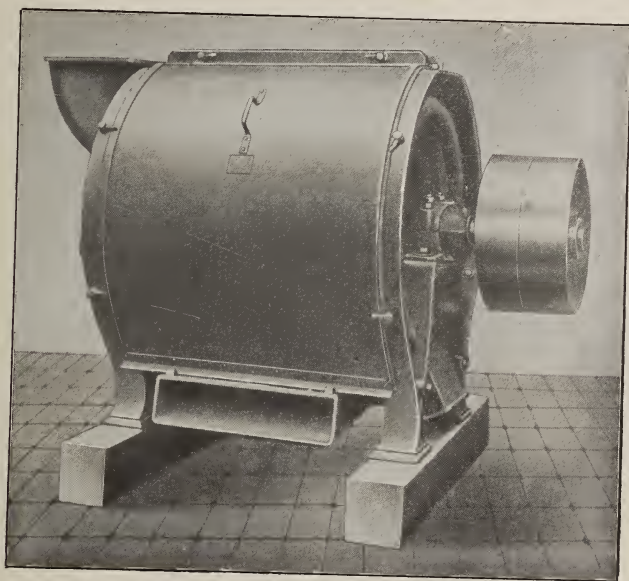
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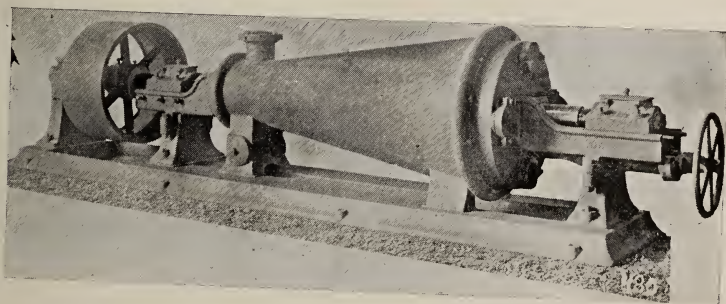
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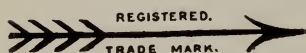
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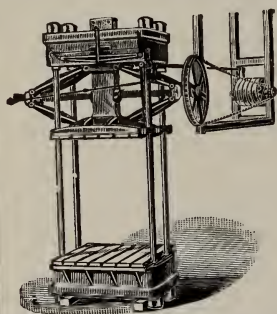
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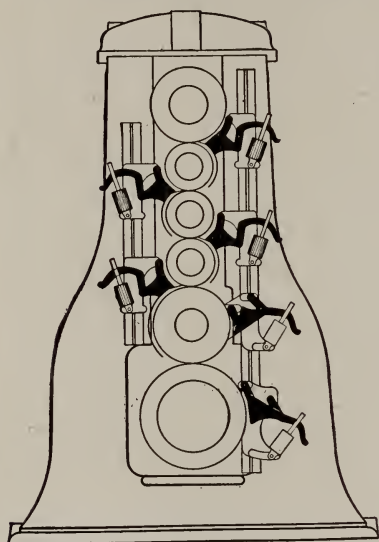
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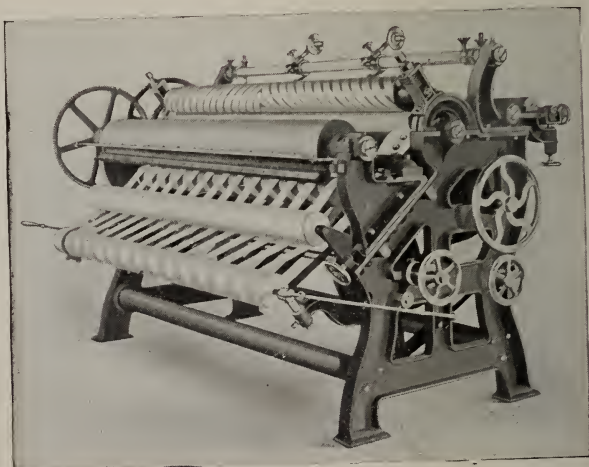


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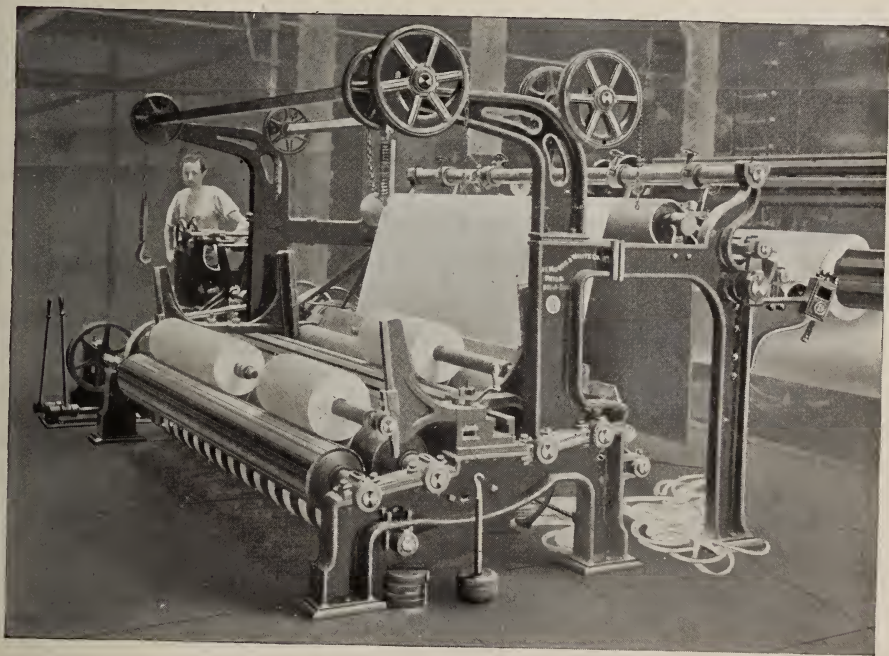


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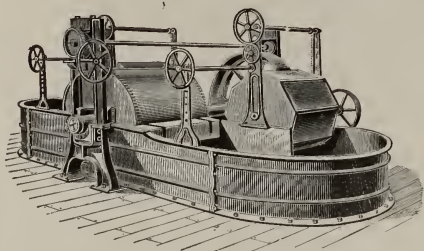
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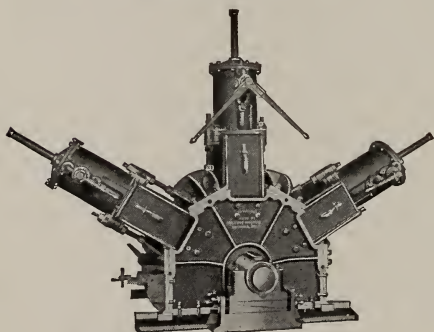
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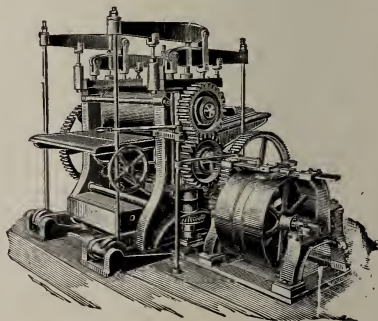
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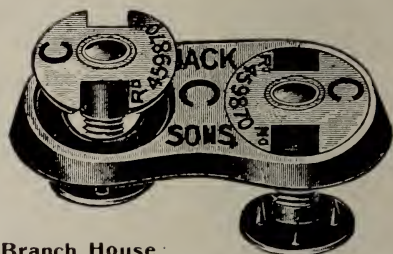
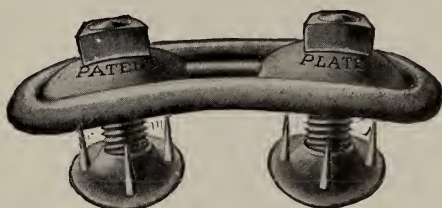
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 9. TORONTO, SEPTEMBER, 1909.

{ \$1. A YEAR
SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

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PUBLISHERS

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FORESTS AND TAXATION.

Forests owned and managed by municipalities or communes are no uncommon thing in Europe. Of late interest in this aspect of forestry is on the increase on this continent. An evidence of this fact was given by a meeting lately held in Cobourg, Ont., and attended by representative men of the counties of Northumberland and Durham.

The municipal forests of Europe frequently make a material reduction in the taxes of the municipality—in fact, sometimes wipe the taxes out altogether—by the revenue derived from those forests.

The object of the meeting referred to was to consider the matter of the united counties purchasing and reforesting a tract of land within their borders. This

tract is some 15,000 acres in extent and forms the watershed between the streams flowing into Lake Ontario directly and those running into the Trent River. The soil is almost pure sand. A fine crop of pine originally covered the area, and after it was taken off the land was for some years farmed with fair success. But the fertility of the soil has steadily diminished and to-day not many farmers are left on the ridge. Many farms have been deserted and areas of "blow" sand have been formed, sand from which is in some cases drifting on, and covering up good soil on adjoining farms. The streams throughout the area, too are torrents in spring-time, but in late summer and autumn their beds are almost dry—the usual result of cutting away the forests at the headwaters of streams.

Though almost useless for farming now, the land will grow fine timber. Originally it was covered with a fine growth of pine, and large stumps still remain to show the size the timber attained. Fine young timber may be seen at various places in the area. At one place in Durham county, moreover, a plantation of young white pine was made some four years ago and this has developed into a thrifty young crop of timber.

The land can, it is thought, be bought at an average price of five dollars per acre. If the land is bought at this figure and planted with pine at a cost for plants and planting, of ten dollars per acre, the cost per acre of the planted area would, at the end of sixty years

amount to about a hundred and sixty five dollars (\$165). The figure given for plants and planting is a liberal one, and the final cost given (i.e., \$165) would include adequate charges for management and protection, as well as an allowance for taxes at 17 mills on the dollar. (Money is assumed to be worth three and a half per cent. per annum).

The pine timber standing on the acre of ground would be worth, even at prices now prevailing, six hundred dollars. In other words, not only would the investment repay the interest at three and a half per cent. per annum, but in addition, it would yield an amount equivalent to a yearly payment of about two and a quarter throughout the sixty years. Thus the yearly revenue would amount to almost half the amount paid in the first instance for the land.

Considerable work in the planting up of such land has been done in France and Germany, and much interest was shown at the meeting in the address of Dr. B. E. Fernow, dean of the faculty of forestry of the University of Toronto, who gave some interesting figures showing the profitable results that had been obtained. Other speakers at the meeting were Messrs. Thomas Southworth and James Lawler, president and secretary, respectively, of the Canadian Forestry Association, E. J. Zavitz, Forester of the Ontario Department of Agriculture, and others. The meeting passed resolutions favoring the reforestation of the lands in question and recommending that the council of the counties try to secure the co-operation of the provincial government. The matter will be further discussed at a series of meetings to be held during the autumn, to conclude with a meeting of representatives of the counties in December next.

In other parts of Ontario are found conditions very much the same as those in the district above referred to, and similar action in the direction of creating municipal forest reserves could be

taken with advantage to these districts. In other parts of Canada there are large areas of waste land which could be similarly turned to account. The city of Prince Albert, Sask., for example, has opposite it, on the other side of the Saskatchewan River, a large area of sandy land suitable for growing trees upon, and it would be to the interest of the city to acquire this and maintain and manage the forest, which would ultimately yield a considerable profit.

In the state of Pennsylvania, it may be noted, the legislature, at its last session, passed a bill empowering municipalities to acquire land for the purpose of forming such municipal forest reserves.



THE UNITED STATES PULP AND PAPER TARIFF.

The rulings that have been handed out since the new tariff of the United States went into effect interpret that tariff to the extreme letter of the law so far as the pulp and paper trades are concerned. The interpretation makes for the fullest protection to every form of industry in the U. S. with the least demand possible on the forest resources of that country. This is a policy that regards the self interest of the U. S. first and last, and while in maintaining it, a club seems to be held up to Canada to compel us to yield up Canadian pulp wood in order that the forests of the U. S. may be saved, the seeming attempt to hold up the Canadian train is held to be not the prime motive but one of the disagreeable incidents of a purely selfish policy.

Whatever the motive, the effect of the new ruling is that in the case of Quebec the stumpage tax of 25c. a cord on wood cut from Crown lands and exported to the U. S. is held to be a discrimination against the U. S., and consequently, the U. S. treasury department has promulgated the retaliatory provisions of the new tariff against that province. This

puts an extra duty of \$2 a ton, plus 35c. per ton (the countervailing duty assessed as the equivalent of the stumpage tax), so that \$2.35 per ton is added to the regular duty of \$3.75 a ton on print paper, making \$6.10 per ton on paper exported from the Province of Quebec. In the case of Ontario it will be remembered that former judgments of U. S. courts held that that province's prohibition of the export of pulp wood from Crown lands could not be held to be an export duty, and so there was no retaliation against Ontario under the old law. But now the treasury department rules that the provisions of the Payne tariff apply, and an extra duty of \$2 a ton is being enforced against news paper from Ontario.

News print from other provinces is admitted at \$3.75 per ton. These provisions apply to all kinds of paper valued at three cents a pound or less, but are enforced only against paper made from wood cut off Crown lands.

The regular duty on mechanically ground pulp is now one-twelfth of a cent a pound, dry weight, which would make \$1.67 per ton. But where a province imposes no restriction on the export of pulp wood pulp shall be admitted free from such province.

Theoretically, there should be a duty of \$2.02 per ton imposed on Quebec pulp, for if the stumpage tax is held to be a discrimination in the case of paper it is also a discrimination in the case of pulp; but so far no ruling to this effect has been promulgated.

There are three classes of U. S. industries affected directly by the tariff: the consumers of paper, the consumers of pulp, and the consumers of pulp wood. The first two classes only are subject to the antagonism of conflicting interests in their home market, but in both classes the concerns that are now dependent on Canadian paper and Canadian pulp are increasing in number and influence. So also is the number of mills that are more or less dependent on Canadian pulpwood.

It will thus be seen that the ultimate conflict will take place over the supply of pulpwood. As the position of pulpwood will have to be determined by tariff laws, it is becoming more clear than ever that the situation cannot be controlled by provincial laws unless the provinces act together, which is hardly likely. In the case of Quebec the amount of wood now exported off Crown lands is estimated at only about 15 per cent. of the total exports from the province, while of the wood shipped off privately owned lands much is in the hands of the U. S. concerns. The amount of such lands in foreign hands is over 20,000 square miles. If the policy of conserving the forests of Canada requires to be carried out by prohibiting or restricting the export of wood, it can only be done effectively by the Dominion Government; and if that policy comprehends the restoration of wasted forests as well as the regulation of existing ones, the pulp and paper and timber interests on both sides of the line must make up their minds to suffer some inconvenience and loss in the enforcement of a measure of such profound significance. For the common good individual interests must make up their minds to this. A conservation commission already exists in the U. S., and one with a good personnel has just been appointed by the Canadian Government; and since the forest resources of Canada stand first in importance because of their relation to our water powers and agriculture, it will be the duty of this commission to investigate this problem first.

In the meantime, pending the recommendations of the commission, the suggestion of Mr. Barber that the paper and pulp manufacturers of Quebec should volunteer to pay the same stumpage tax as imposed on exported wood is a practical one. It will not only sweep away any possible excuse for the imposition of the surtax against Quebec products, but it will relieve Sir Lomer Gouin from the alternative of sud-

denly withdrawing from the plan which the Quebec paper manufacturers themselves had been urging on him. Of all the Quebec Premiers of recent years, Sir Lomer Gouin alone has come forward with a substantial measure of fulfilment of the promises made before his election. He has not only taken a stand on the stumpage tax, but he is prepared to go further; and, what is of more practical consequence, he has this month announced that the operations of the fake settler and his abettor in the waste of pulp lands shall cease. This was the weak point in the policy of Provincial Governments, as it enabled the pulpwood operators to maintain a constant system of stripping bare great tracts of land under the pretense of "settling," the so-called homesteads being abandoned as soon as the wood was taken off, and the "settlers" being shifted to other tracts of woodlands by their employers to repeat the operation, and Sir Lomer Gouin now proposes to end this system of piracy by prohibiting the settler from selling off his wood till he has completed his settlement duties and obtained his patent in a bona fide way. The best public opinion within the province, as well as outside, has endorsed the Premier in his new policy, and it will not be long before even the pulpwood operators, whose political influence has hitherto been out of proportion to their numbers, and the commercial interests behind them, will see that the future prosperity of Quebec is only to be secured by systematic conservation of the forest assets, which outweigh all other material resources in that province.

As to the paper and pulp manufacturers of Quebec, the peculiarity of their present situation is that the new ruling of the U. S. authorities finds them with a number of large contracts taken under the old law and still remaining to be fulfilled. The payment of the stumpage tax of 25c. a cord is a trifle compared with the new rates of duty. Shippers from Ontario are almost in the same boat, but an appeal to the courts from

the ruling of the department might bring another declaration that prohibition of exports is not an export duty. Shippers would meantime have to pay the new duty till such decision was rendered.

While these changes are in flux it is interesting to note that Canadian manufacturers and their agents are having many inquiries from the U. S. importers, who are apparently prepared to pay the advanced cost for both pulp and paper from Canada—a situation which is no doubt partly due to the low water in the States, rendering imports necessary for immediate needs.



CONSERVATION COMMISSION.

The decision of the Government announced in Parliament at its last session to actually do something in accordance with the views reached at the conference for the Conservation of Natural Resources held at Washington a few months ago, is now being put into effect. The Government has appointed a representative Commission to deal with the subject in all its bearings. Hon. Clifford Sifton is chairman and will as such be administrative head, with power to carry out any recommendations that may be made by the body. Whatever may be said of Mr. Sifton politically, nobody will question his executive ability, and this is what is needed if the commission is to do anything tangible. A permanent secretary will be appointed. The other members are Hon. Sydney Fisher, Hon. Frank Oliver, Hon. Wm. Templeton, Premier Haszard, of Prince Edward Island, Attorney-General Pipes of Nova Scotia, Surveyor-General Grimmer of New Brunswick, Hon. Jules Allard of Quebec, Hon. Frank Cochrane of Ontario, Hon. Hugh Armstrong of Manitoba, Hon. J. A. Calder of Saskatchewan, Premier Rutherford of Alberta, and Hon. F. J. G. Fulton of British Columbia, all appointed ex-officio, and the following members selected by the Gover-

nor-in-Council: Hon. Benjamin Rogers of Alberton, P.E.I.; Professor Howard Murray of Dalhousie University, Halifax; Messrs. Frank Davison of Bridgewater, N.S.; Cecil C. Jones, Ph.D., Chancellor of the University of New Brunswick; William B. Snowball, lumber merchant of Chatham, N.B.; Dr. Henri S. Beland, M.P.; F. D. Monk, M.P.; Dr. J. W. Robertson, Director of the Macdonald College of Ste. Anne de Bellevue; Monseigneur J. C. K. Laflamme, Superior of the University of Laval; Sir Sandford Fleming; Hon. Senator W. C. Edwards, E. B. Osler, M.P., C. A. McCool, ex-M.P.; J. F. MacKay of The Globe, Toronto; Professor Fernow of the University of Toronto; Rev. Dr. George Bryce of the University of Manitoba; Dr. W. J. Rutherford, Deputy Minister of Agriculture, and a member of the faculty of the University of Saskatchewan; Professor M. M. Tory, President of the University of Alberta, and John Hendrick, lumber merchant of Vancouver.



LET US WAIT.

Even though our neighbors to the South seem disposed to squeeze us into parting from our just rights to dispose of our resources as we ourselves deem fit there is no cause for us to become excited. Most pulp and paper men believe that the best, let alone the most dignified, thing to do, is just to sit still and let the inevitable take its course. In this connection, the following paragraph from an able New York contemporary is full of interest: "From the highest sources a representative of The Paper Mill learned within the week that positive plans have been laid to dispose of water rights now employed in this country for the making of newspaper and further negotiations are being made for the erection of large plants for newspaper making in Canada. It would seem that Canada has pledged to cooperate with the news manufacturers to the extent of protecting their interests

and not forcing any arbitrary and detrimental laws. Fortunately the large news manufacturers of this country can afford to sit tight now and move when the time comes. The plants and water rights now being held by these manufacturers are most valuable assets and have been increasing enormously in value during several years. They are negotiable and the funds that would be obtained through a sale would supply enough and plenty for building new mills elsewhere. It has been rumored during some weeks that a move toward Canada would be made, but no definite official action by any concern has yet been taken.



PREMIER COUIN STANDS FIRM.

"It is time that the Province of Quebec develops her marvellous lumber industry and despite the American tariff retaliation, the Government will stick to the policy of an exportation duty on all unmanufactured pulp-wood cut on the limits of the Crown.

"We want our Quebec-Cobalt line and the Government will build a railway to the Chibougamou district, if the report of the mining authorities, who will be sent there to study the wealth of the supposed Eldorado, is to the effect that it is worth that heavy expense of money.

"We have a great abundance of water powers in this beautiful province, but every year, through the floods, we are losing an immense volume of electric energy that should be saved for our industries. It is the intention of the Government to save that wealth for the people of Quebec. As soon as possible, in the upper regions of this country, we will build reservoirs to regulate the running of the water, and where we will retain the surplus of the spring season to utilize it when the summer days have lowered the level of our rivers."

These declarations were uttered by Sir Lomer Gouin at a banquet tendered him by the citizens of St. Johns, Que., on the 9th inst.

PULP AND PAPER NEWS

Lord Northcliffe is expected shortly in Canada to visit his various pulp mill properties.

* * *

The American Bank Note Company has been authorized to increase its capital to \$100,000.

* * *

J. R. Booth, of Ottawa, has, it is understood, invested large sums in the merger of cement companies.

* * *

Work has started on the construction of the storehouse at the Lybster mill of the Lincoln Paper Co., Merrittton.

* * *

The Jonquieres Pulp Company, Jonquieres, Que., expects to have a news machine in operation before the end of the year.

* * *

Large quantities of pulp-wood are arriving at Portland from New Brunswick, larger it is said than at any time since the industry started.

* * *

A pulp mill belonging to the Ontario Power Company at Tamworth, Ont., was destroyed by fire at a loss of \$1,000, without insurance.

* * *

Three hundred employees of the Miramichi Pulp and Paper Mill struck work last month through some disagreement as to the payment of wages.

* * *

The Armac Press, Toronto, has been incorporated with a capital of \$40,000. T. Arbuthnot, R. C. Tibb, and J. A. McMillan, Toronto.

* * *

C. A. Millener, of Deseronto, Ont., offers for sale about 3,000,000 feet board measure of logs, with cutting up mills and valuable limits.

* * *

The Dalhousie Lumber Company's rossing mill, Chatham, has resumed operations after being closed down for repairs.

It is understood that Stetson, Cutler & Company, of Boston, Mass. and Mispic, N.B., may purchase a property in Fredericton, and erect thereon a large pulp mill.

* * *

Mr. Mansell, manager of the Toronto Pulp and Paper Company's offices in Toronto, returned last month from an extensive holiday trip through the Maritime Provinces.

* * *

The Canada Paper Co. is re-arranging its power plant and is disposing of four engines in good running order. Details of these engines are given in the company's advertisement.

* * *

James Logie, who has been with the E. B. Eddy Company for fifteen years, has been appointed to take charge of their Toronto branch, in place of T. A. Weldon, recently appointed manager of the Montrose Paper Mills Company.

* * *

The Jenckes Machine Company, St. Catharines, held their annual picnic at Victoria Park, Niagara Falls, last month. The outing, which was enjoyed by a large number, included sports and games, and a very enjoyable day was spent.

* * *

J. R. Booth, Ottawa, has just ordered another Pneumatic Save-All, made by the Sherbrooke Machinery Co., Sherbrooke, Que. This is a good illustration of the practical value of this machine, as J. R. Booth has made a thorough test.

* * *

The Sherbrooke Machinery Co., which represents in Canada the same patented machinery that is made in the United States by the Improved Paper Machinery Co., Nashua, N.H., recently installed some machines in the Anglo-Newfoundland Development Co.'s mills.

Geo. Coultis & Sons, Thedford, Ont., have ordered a duplex pump from The Smart-Turner Machine Co., Limited, Hamilton, Ont.

* * *

The Corporation of Markdale have ordered a double acting triplex power pump for their waterworks system from The Smart-Turner Machine Co., Limited, Hamilton.

* * *

The Excelsior Lumber and Development Company, Ltd., Ottawa, recently incorporated with a capital of \$100,000, has power to build and acquire pulp and paper mills. J. S. Crawford, W. E. Brown, and J. W. Gamble are among the incorporators.

* * *

Toronto Paper Box Company, Ltd., has been incorporated with a capital of \$20,000 to make and deal in all kinds of paper boxes, paper box board and novelties of all kinds. Grant Cooper and J. M. Macdonell, Toronto, are among the incorporators.

* * *

A dispatch from New York says that interests controlling the Berlin mills property in New Hampshire are planning to install a print paper mill plant at La Tuque, Canada, and that the International Paper Company has prepared plans for numerous locations for paper mills in Canada, that company having stopped the manufacture of print paper at a number of its more expensive mills in the United States.

* * *

Vere H. Smith, a capitalist, & J. G. F. Lowerson, pulp mill expert, and Hamilton Bean, lumber dealer, of London, Eng., have been on a visit to Dryden, Ont., with a view to making arrangements for extending the Gordon Pulp and Paper Company's operations. No definite arrangements have so far been made, but it is understood that, with a few minor alterations, the original plans of the promoters will be carried out at an early date.

The Smart-Turner Machine Co., Limited, Hamilton, have recently supplied or received contracts for machinery from the following:—The Cobalt Power Co., Gillies Depot, with a 15-ton hand-power travelling crane; two double-acting triplex power pumps for the waterworks system at Clinton, Ont.; T. H. Shepard, Orillia, with a horizontal side suction centrifugal pump, belt driven; a centrifugal pump to F. Shoe, Cobalt, Ont.; The Fowlers Canadian Co., Hamilton, with a duplex pump; The Calgary Iron Works, Calgary, Alta., with a 5-ton hand-power travelling crane; W. Hanna & Co., Port Carling, Muskoka, with a duplex outside packed plunger pump with pot valves; The Adams Wagon Co., Brantford, with an automatic feed pump and receiver, a duplicate of the one supplied two years ago; the corporation of Burlington, two motor-driven double-acting triplex power pumps, for their waterworks system; the Temiscaming & Northern Ontario Railway, North Bay, a 5-ton hand-power travelling crane; The Coniagas Reduction Co., Limited, Thorold, Ont., with a duplex fire pump.



MONTREAL DOINGS.

(Special to Pulp and Paper Magazine).

Montreal, Sept. 10, 1909.

Misunderstanding having arisen because of certain reports having been published respecting the meeting which took place between the pulp and paper interests and Premier Gouin, and also as to the attitude of the Canadian Wood Pulp Association upon the meditated action of the Quebec Government upon the export question, a representative of The Pulp and Paper Journal called upon the secretary of the latter association. Being asked what part the Wood Pulp Association had taken in the controversy, he said:—

"The Canadian Mechanical Wood Pulp Association and the other associations took action irrespective of each other.

Our Association did not call upon the Premier, inasmuch as we had nothing to ask of him in the way of change of programme. We, however, did communicate with him by letter and resolution, such communication being in the form of a complete and entire endorsement of his policy, as the following copy of the resolution will show:—

“That the Canadian Mechanical Wood Pulp Association, at its meeting held on the 10th day of August, 1909, do and hereby approve of the commendable action taken by the Premier of the Province of Quebec, Sir Lomer Gouin, in the matter of export of pulp wood from the Province of Quebec, particularly with reference to wood cut from Crown Lands.

“The Premier is to be congratulated upon his appreciation of the situation and his promptness in dealing with it. The attention of wood pulp users over the entire world is focussing on this province, and the members of this association are unanimous in their approval of the policy adopted by Premier Gouin in the matter of pulp wood.”

Continuing, the secretary said:—

“As you may remember, the action of the Premier, to which reference is made, was the announcement a few months ago that it was his intention to prohibit entirely the exportation of pulp wood from Crown lands. The Order-in-Council at present governing the situation was put into force for ten years, the ten-year term expiring in September, 1910. By this order, pulp wood or other timber cut on these Crown lands could be exported subject to a tax of 25c. per cord. After September next, consequently, the situation will be that the export of this pulp wood will be prohibited altogether.

“The recent conference between the Premier and the paper and pulp industry arose through a desire on the part of the latter, in view of the conditions of the Payne Tariff Law of the United States, to secure a temporary relief from the tax imposed by the Quebec Government (25c. per cord), and thereby obtain

all the advantages of the minimum tariff with the United States.

“A meeting of the pulp and paper section of the Canadian Manufacturers' Association and of the Timber Limits Association was held at the Windsor Hotel a few weeks ago for the purpose of discussing this matter and adopting resolutions which might be offered to the Premier in view of the situation. At this meeting two resolutions were adopted, one by each association.

“The pulp and paper section commended the policy to which Premier Gouin had committed his Government, and suggested further, in view of the temporary advantage to be secured by Canadian manufacturers and the comparatively small revenue accruing to the Province of Quebec, that the export duty of 25c. per cord should be cancelled until September, 1910. The resolution of the Timber Limits Association requested the Premier to relieve Canadian manufacturers of the 25c. per cord export tax and recommended, should he adopt the prohibition policy, that it would include all standing timber in any way under the control of the Government.

“The Premier, in answer to the deputation, stated that he found it very difficult to reconcile himself to the suggestions, as he disliked the idea of even temporarily receding from his policy already outlined.”

Views of Paper Men.

An official of one of the largest paper companies in Montreal was interviewed by The Pulp and Paper Magazine respecting the situation as it exists between Canada and the United States. He said:—

“We all feel that Canada should get some advantage out of the large quantities of wood she is furnishing the United States with. Over in the United States it is commonly believed that the question of tariff has been settled for the next ten years, and that any advantages which it was intended Canada should be allowed, have already been given

her. Not only that, but, with respect to the countervailing duty, it is claimed that the United States Treasury Department's rulings with respect to the quantity of pulp or paper which a cord of pulpwood will yield should be altered. The alteration would reduce the percentage of the yield and would proportionately increase the countervailing duty.

"Some question has arisen as to whether there is any possibility of the United States applying the maximum tariff to importations of all manner of goods from Canada or from any section of Canada, designated. The question has been raised because of the preferential features of the Canadian tariff with respect to France and also because of the features of the Canadian tariff, which might be considered by the United States as 'unduly discriminating' against them.

"The situation, as it stands at present, is that, unless the President issues a proclamation by the 31st of March next, continuing Canada under the present minimum United States tariff, an additional ad valorem duty of 25% over and above the regular duty will automatically go into force against Canada on April 1st. The feeling is, however, that the President's advisers will continue Canada under the minimum tariff. It is of much importance that, with the exception of two countries, namely Great Britain and Germany, Canada purchases more goods from the United States than any other nation in the world, and that, as between Canada's exports to the United States and the exports of the United States to Canada, the latter are the larger by some \$90,000,000. Competent authorities consider that the maximum tariff is not intended for Canada but for some European countries—particularly Germany. The denouement of the whole situation is looked forward to with much interest.

"Advices from New York state that United States limit holders expect to get a decisive reply from Premier Gouin in response to their inquiry concerning the Government stumpage licenses for cut-

ting timber from Crown lands for United States use during the coming winter season. As everyone knows, the Premier has annunciated the policy of prohibiting the export of pulp wood cut from Crown lands, and it is apparently a question when he considers it advisable to make this policy effective. No timber operations have yet been commenced by United States limit holders, nor will they be commenced, it would seem, until this matter is determined and the request of the paper makers for the removal of the differential stumpage tax of 25c. per cord is definitely and permanently settled."

In explanation he added that the stumpage tax on all wood cut on Quebec Crown lands is at present 65c. per cord, but that when this wood is manufactured into pulp or paper in Canada there is a rebate of 25c. per cord. This brings up a very important point: Should any pulp or paper be manufactured entirely from wood cut from private lands and exported to the United States, would the duty be confined to the regular duty of \$3.25 per ton, or would the countervailing duty apply to it also? The opinion of many authorities of weight is that it should take the low rate.

The Grand Falls Project.

Sir William Van Horne repeated the statement, at St. John, N.B., during the last month, that his company intended erecting a pulp and paper plant at Grand Falls at a cost of several millions if allowed to do so. It is reported that he stated the industry would support a community of thirty thousand people. He was at Grand Falls for the purpose of giving evidence on behalf of the Grand Falls Water Power Co. as against the Grand Falls Power Co. Apparently the former company has been a little slow in commencing operations, and the latter has recently been incorporated and is now beginning development work at the falls. Their project, apparently, will have a damaging effect upon the property of the Water Power company, and the Government, being anxious to

ascertain the amount of bond the Power company should deposit against such damage, took evidence from Sir William.

Laurentide Paper Co. Report.

At a special general meeting of the shareholders of the Laurentide Paper Co., held in Montreal recently at the close of the annual general meeting, it was decided to increase the capital stock of the company from \$2,800,000 to \$3,800,000.

The annual report showed that the profits from the business of the past year, after providing for interest and contingent accounts, were \$283,892. Four quarterly dividends of 1¼% each had been paid on the preferred stock out of the profits, and two semi-annual dividends of 3½% each on the common stock, as well as one quarterly dividend of 1¼% on the common, besides which, \$20,000 was added to depreciation account, leaving a balance of \$39,892 to be carried forward.

Mr. Carl Riordon, of the Riordon Paper Co., has just returned from Muskoka. He holds very decided views as to the relationship of Canada and United States so far as the pulp and paper situation is concerned. Being asked how the situation would be affected by the new tariff of the United States, he said:—

"The crux of the situation is that Canada has the wood and the United States has not. Consequently, the higher the United States places the duty the more they will have to pay for their pulp. Canada, for the first time, is in a position to make the market. It is for us to say what they shall pay, and not for them to say what they will give."

Regarding the possibility of the maximum tariff being imposed against Canada, Mr. Riordon said:—

"It is not very apparent yet what they will do. As a matter of fact, we are not discriminating against the United States so far as our lumber and pulp wood are concerned. The Canadian

regulations concerning the exportation of wood apply to all countries, so far as that is concerned, so that we are not in any way singling out the United States."

Asked if there was any disposition to abandon the policy outlined by Premier Gouin recently, he said:—

"The regulations are being made even stricter, inasmuch as the prohibition hitherto relating to Crown lands is to apply to non-patented lands also. That is, when a settler takes a grant of land he must do certain work upon it before it can become his. This takes him three or four years, after which he receives his patent. In future he will be prevented exporting pulp wood from this land until he has obtained the patent and thus shown that he is a bona fide settler."



OPINIONS ON THE UNITED STATES PULP AND PAPER TARIFF.

W. P. Ryrie, of the Ryrie Paper Company, Toronto, discussing the new United States tariff with a representative of the Pulp and Paper Magazine, said his firm was not affected by the tariff, but as a matter of public policy a stiff export duty on pulp-wood, or the total prohibition of its shipment to other countries was the logical outcome of the present situation. The action of the United States in framing the duties on pulp and paper is dictated by entirely selfish considerations, and the interests of Canada have not been studied in the least. It remains for Canada to decide what her duty is to herself; and since this duty requires us to preserve our forest resources and develop our own pulp and paper industry, there was only one course for a self-reliant and self-respecting nation to follow. Canada will not gain a cent by cringing and supplication; on the contrary, on every one of the occasions since the revocation of the Reciprocity Treaty when attempts were made to force us into dependence

on Uncle Sam, our determination to paddle our own canoe has won our uncle's respect. It happens that in this case the trump card—the pulp-wood—is in our own hands, and while the prohibition of the export of this raw material would give a jolt to some branches of trade on both sides of the line the damage would be greater to the industries of the United States than those of Canada, and the final result would be the transfer of capital from the United States and other countries to Canada, because it would be evident that such industries would be best located where the supplies of raw material and water power are plentiful and permanent. Hence, reasoned Mr. Ryrie, duty and self-interest coincide in this case, and if the ultimate result proves a damage to the pulp and paper industries of the United States and a vast expansion of these industries in Canada, we will have the satisfaction of knowing that the injury to American interests was brought about by their own legislative action, and not by ours.

Joseph Kilgour, head of the firm of Kilgour Brothers, paper dealers, said the present tariff developments in the United States had not changed his convictions concerning the policy of Canada. He deprecated the tendency which naturally finds expression in some quarters to regard the situation as calling for retaliation by the provinces whose export trade to the United States in pulp and paper is hit by the rulings under the new tariff. Our policy should not be governed by passion but by a calm consideration of duty to the country in the conservation of our national resources. To fulfil this duty we might even have to regulate, or even restrict, some of our own local industries for the sake of preserving for the benefit of our future national interests the prime resources of the country, among which the most vital, without question, are the forests. They are the most vital because the forests are the source of the fertility of the soil in a general sense, and moreover maintain the distribution of

the rainfall and the regular flow of streams on which the water powers depend. For these reasons it is evident that this subject is not bounded by the interests of the pulp and paper manufacturers or the timber merchant and timber limit holder, important though they are. The "white coal" furnished by our enormous water powers is of itself of more material consequence, perhaps, than the pulp and paper industries because these powers are available for all industries. But when the soil itself is dependent on the forest conditions we see that almost every natural interest in the country is involved in this question. There should be a comprehensive plan of regulations in cutting timber and of restriction or prohibition in the export of logs, including pulp-wood, not for its effect on the industry of another country or even for its effect upon our own manufacturers, but because of its relation to our greatest national assets.

John R. Barber, of Barber Brothers, paper manufacturers, Georgetown, Ont., thinks it wise to take the line of least resistance in dealing with the pulp situation in the United States. Up to the time of the rulings under the new tariff the situation was tolerable for those pulp and paper manufacturers in Canada who wished to do a trade in the United States. As it is now it is an open question whether prohibition of the export of pulp-wood, and a fight to a finish is to be preferred to a graceful yielding by Ontario and Quebec in the matter of regulations, which discriminate against the United States in the import of pulp-wood. In the case of Quebec, Mr. Barber pointed out that it would have been more business-like if the manufacturers of that province had offered to Premier Gouin to pay the same stumpage tax as American importers of wood pay, thus setting the premier free from any charge of discrimination against Americans. The duties would then have remained as before, and the association would not be in the humiliating position of hav-

ing asked the Premier of Quebec to take a bold stand in their behalf, and then when they were hit as a direct result of their own advice appealing to Sir Lomer Gouin to swallow himself for their sakes. As a result of this paltry stumpage differential duty of 25c. a cord on wood the exporter of paper to the United States has now to pay the \$3.75 per ton duty, fixed by tariff, plus the \$2 a ton added by order of the President, and 35c. a ton assessed as the equivalent of the stumpage discrimination. Before the new rulings it cost the United States importer of Canadian wood about \$11 a cord to bring this wood to the mill, taking the average at the chief manufacturing centres of the east, whereas it cost the Canadian pulp manufacturer only about \$7 to get the same wood to the mill. This about equalized the cost, and enabled the Canadian manufacturer to do business in pulp or in news print paper as he cannot now. With regard to the supply of pulp-wood Mr. Barber thinks that with proper regulations for cutting there should be no anxiety over the maintenance of ample supplies. He estimates that in the Province of Ontario out of a total area of 150,000,000 acres, 90,000,000 acres are better suited for growing timber than for agriculture, and that a large part of this 90,000,000 acres are fit for little else than growing such timber as pulp-wood. With proper protection against fire and wasteful cutting there should be enough to supply the needs of Ontario and a large part of the United States, so that with fair play from the latter country the industry might go on undisturbed on both sides of the line.

Frank Booth, of the Booth pulp and paper mills, Ottawa, has a remedy which, in his opinion, will bring the United States Government to time very sharply. It is the proposal that the Dominion Government should absolutely prohibit the export of pulp-wood from Canada to the United States from privately owned limits as well as from Crown lands. "The only thing to do is

for Canada to prohibit her pulp-wood from going into the States at all," said Mr. Booth. "The result would be that the price of paper would very soon soar so high in the United States that they would have to come to Canada and grant her almost any concession she might ask to have the prohibition removed."

W. H. Rowley, President of the E. B. Eddy Company, says: "The Payne tariff will not affect us very much, because we sell all our paper in Canada. Of course, it will affect us, but I don't believe in lying down and crying the first time they point a gun at you. I believe that when the United States newspapers realize that the effect of the new tariff will be to make them pay \$5 or \$6 a ton more duty there will be such an agitation against it that it will be changed. The only other country they can obtain pulp from is Scandinavia. You will see the American papermaker will eventually have to come over to Canada to make paper."

For opinions of other pulp and paper manufacturers see Montreal letter.



AMERICAN NEWSPAPER PUBLISHERS AND THE TARIFF.

We have received from John Norris, representing the American Newspaper Publishers Association a memorandum on the situation arising out of the new rulings of the United States Treasury Department. In the course of the memorandum Mr. Norris says the Associated Press reports from Canada indicate that the exportation of pulp-wood will be prohibited by the Provincial and Dominion Governments, and that in view of the fact that the largest print paper mills of the United States are dependent on Quebec for their supply of pulp-wood the burden of the extra cost involved by the new ruling will fall on the paper consumers of the United States. The memorandum goes on to state:

"The International Paper Company and other large papermakers acting in

concert have been delaying the announcement of their contract prices for the year 1910 until the Canadian authorities definitely determine upon their policy. Several months may elapse before any official proclamation of the terms of timber leases is made and unlooked for contingencies may rise in the interval to change the programme, but the present intention of the Canadian authorities and of the Canadian people is strongly in favor of an effort to bring about a free market in the United States for Canadian pulp and print paper or to prohibit the exportation of pulp-wood.

"President Taft was fully advised of this situation and shouldered the responsibility for it when he informed the tariff conferees that he considered a duty of \$3 per ton on print paper was necessary for the protection of American papermakers.

"Newspaper publishers who are not protected by paper contracts for the year 1910 await the outcome of President Taft's action and Canada's retaliation with deep concern. A scramble of publishers to promptly close yearly contracts at high figures will not help the situation, but will aggravate it.

"Many of the print paper mills have been running part time. The International Paper Company has stopped making paper at a number of its costly mills, notably Wilder, Turners Falls, Bellows Falls and Winnipisiogee. The St. Regis mill turned its machines to wallpaper when it ran short on orders for news print paper. The Great Northern Paper Company made a contract recently at \$2.13, delivered in New York, which is equivalent to \$1.90 f.o.b. mill. In April it closed contracts at substantially \$1.85, delivered, for the New York Times and New York Herald. In some localities the International Paper Company is quoting \$2.25. In others, it declines to quote. Bids on comparatively small contracts—that is, 300 to 600 tons per annum—have ranged from \$1.90 f.o.b. mill to \$2 f.o.b. mill, by Eastern mak-

ers, and \$2.05 f.o.b. mill by Western companies. But the Canadian attitude is likely to change those prices."



CANADIAN FORESTRY ASSOCIATION.

A special meeting of the Canadian Forestry Association was held in Regina, Sask., on the 3rd and 4th inst. There was a large attendance, and as the subjects mainly dealt with referred to conditions in the prairie provinces, the proceedings were followed with even more than usual interest.

The presiding chairman was Hon. W. T. Pipes, head of the Crown Lands Department of Nova Scotia.

The highly important subject of Tree Planting on the Western Prairies was taken up by Angus Mackay, superintendent of Dominion Experimental Farm, Indian Head, and Archibald Mitchell, of the Tree Planting Commission. A. H. D. Ross, M.A., M.F., Lecturer on Forestry at Toronto University, spoke on Dominion Forest Reserves.

These topics came in for a prolonged and keen discussion.

The question of Game Protection in connection with the Forest Reserves, taken up by J. P. Turner, secretary of the Manitoba Game Protection Association, and T. N. Willings, Chief Game Guardian for Saskatchewan, also was taken up with great interest.

There were illustrated addresses by Norman M. Ross, Chief of the Dominion Government Tree-Planting Division, who described the work of tree-planting for fuel, fence posts, on the prairie, and by A. Knechtel, Inspector of Dominion Forest Reserves.

On Saturday the delegates made a pleasant visit to Indian Head, where they saw the Forest Tree Nurseries and the Dominion Experimental Farm.

A resolution was carried in favor of making a complete reservation of the eastern slope of the Rockies and ex-

tending some of the other reserves. Another called for greater care by railways and other corporations working in the bush, and for the clearing away of limbs of trees and other brush adjoining railway tracks.

It was decided to form a game section of the Association.



TWO NEWFOUNDLAND PULP PLANTS.

A few further details can now be given of the Anglo-Newfoundland Paper Mills at Grand Falls, Nfld., which, in many respects, are probably the finest of their kind in the world. The buildings extend 650 by 550 ft. The paper machine-room is of reinforced cement and is 232 ft. by 150 ft. wide and 44 ft. high. In the construction of these and of the dam 70,000 barrels of cement were consumed. Power is obtained from turbines with an auxiliary steam plant to generate electricity in case of necessity. There are no less than 70 motors for driving different parts of the plant. Two digesters will turn out 55 tons of sulphite pulp daily, part of which will go to make paper and the rest will be exported. The plant, when in full working order, will ship 2,500 tons of pulp and paper each week, and it is proposed first to charter, then build steamers of 5,000 to 7,000 tons capacity to ply fortnightly between England and Botwoodville, bring out probably Welsh coal for the use of the Harmsworth and Albert Reed companies, and taking back cargoes of paper and pulp from these two concerns. The daily consumption of sulphur and limestone will each be about 5 tons. The plant and equipment were designed by G. F. Hardy of New York, and the construction carried out under the supervision of William Scott, C.E., the resident engineer.

It is expected that the Albert Reed Co. will be in a position to manufacture pulp at Bishop's Falls, Nfld., by the fall of next year, turning out 140 tons of wet pulp every 24 hours the first year and doubling this in the second year of operation. A concrete coffer dam 36 ft.

high has been constructed across to an island in the Exploits river. The works will be constructed on the north bank of this river. The company has an area on both banks of about five miles on which to establish mills and town site. The power house will be one hundred and ninety feet long by eighty-five feet wide, of reinforced concrete and equipped with eight water wheels, or turbines, each capable of developing 1,800 horse power. Six of these wheels will drive eighteen grinders for the breaking up of the logs of wood into pulp, and the remaining two will generate electricity for working and lighting other parts of the mill. The electric energy obtained will be 2,667 horse power. The company has rights over 1,300 square miles of timber in the Exploits Valley. The mills were designed by G. F. Hardy, the well-known hydraulic and mill engineer of New York, and the company's manager at Bishop's Falls is A. E. Harris.



MONTROSE PAPER MILLS CO.

The Montrose Paper Mills Co., Thorold, Ont., has now been reorganized and a charter obtained under the title of Montrose Paper Mills, Limited, with head office at Toronto, and a share capital of \$150,000. The provisional directors are named as follows: G. H. Sedgewick, Lionel Davis, A. T. Struthers, Montalien Nesbitt and Harriet J. Wilson, all of Toronto. T. A. Weldon, a very well-known man in the paper trade and who for the past fifteen years has been the E. B. Eddy Co.'s Toronto manager, has acquired a controlling interest in the Montrose Mills and will assume the entire management. Mr. Weldon will continue to reside in Toronto; the mill at Thorold is being extended and put into first-class shape. Several large orders have already been received and the prospects for the new company would appear to be very bright. Mr. Weldon is a brother of Isaac H. Weldon, of Kalamazoo, Mich., who recently purchased the paper mill

at Mille Roches and reorganized it under the name of the St. Lawrence Paper Mills. The Montrose Co. is asking the Town of Thorold for tax exemption for fourteen years in view of the improvements which are to be made.



CANADIAN MANUFACTURERS' ASSOCIATION.

IMPORTANT RESOLUTIONS BY PULP AND PAPER SECTION.

(By Special Wire to Pulp and Paper Magazine.)

Hamilton, September 14.

At Annual Convention of Canadian Manufacturers Association to-day the pulp and paper section held session, W. H. Rowley in the chair. Three important resolutions passed. The first endorsed policy of Quebec Government prohibiting export of logs and pulp wood and urged that the prohibition be made effective without delay.

Second, that this Association favors total prohibition of export of logs and pulp-wood and that Dominion Government be urged to take legislative action to that end.

Third, that this Association warmly approves creation of Conservation Commission and urges more effectual steps to prevent forest fires.

These resolutions were adopted by convention.

Your representative interviewed several pulp and paper manufacturers from Quebec and Ontario and all say Premier Gouin is determined to put prohibition policy into effect soon as possible; further, that best opinion of province is now solidly behind him. This will make prohibition of pulp-wood export in effect from Quebec to Pacific Ocean, British Columbia now prohibiting from Crown Lands. Mr. J. E. A. Dubuc, of Chicoutimi, says that when the prohibition policy is

settled new pulp mills at Ouatchouan Falls will be converted into a paper mill making 60 tons print per day.



THE HOWELL COMPANY.

G. A. Howell, paper mill stock and supplies, Toronto, gives notice to the trade as follows:—

I have ceased to act as sole selling agent for Jebb Bros., Limited, though still open to accept orders for any of their various packings, which I will continue to offer as occasion may warrant. I have arranged for a representative in London and one in Glasgow, through whom will be offered any specially good packings of rags or paper stock in those markets. I have also opened buying connections in various Continental seaports. As a result I will be able to put before you from time to time any bargains or overstocks which may be offered at interesting figures. I will also be in position to secure for you any special grades of new or old rags, paper stock, pulp, or supplies you may be in the market for. As my connections are all outside the established lines, I will be able, in many cases, to open for you new avenues of supply, which should result in your buying at lower prices.

In future I shall do business under the name of The Howell Company, though there is no change in the ownership or management.



—M. V. Merchant, representing the Gaikwad Paper Manufacturing Company, of Surat, near Bombay, India, is in Canada on a business trip. He is enquiring into the possibilities of shipping fine grades of Canadian pulp to India.



ERRATUM.

The reference on p. 225 to the assets of the Montreal Paper Co. should have read Montrose Paper Co., Thorold.

—R. A. Gibbs, general manager of the Titaghur Paper Mills Company, Calcutta, India, is visiting friends in Ottawa.

—As an illustration of the way in which by-products are being increasingly utilized may be mentioned the fact that the town of Merritton, Ont., uses the liquor from the digesters at the paper mill to sprinkle its streets, instead of water, and finds that once every fortnight is sufficient application to keep down the dust.

—The first installation of the electrical machinery for the big power dam at Fort Frances, arrived from Hamilton, Ont., and as soon as the first unit of the power house is ready to receive it, it will be installed. As soon as this is done the company will be ready to furnish power for street and commercial lighting. The electric light poles are nearly ready for placing in position, and by the end of September it is confidently hoped that all will be in readiness for the street lights. These will likely be 1,600 c.p. arc lamps and so placed that the town will be well lighted. Those who contemplate lighting their residences and places of business should get busy at once and have the installation done so as not to delay the work of placing the lights. The Town Council is very desirous of starting with a large number of consumers so as to enable a better service to be given. The steel work on the pulp mill is proceeding rapidly, and it will not be long before this large building will be roofed in. The contractors hope to have the external work on the power house and pulp mill all completed by October 1st, after which the electrical engineers and pulp experts will place the machinery in position.—Fort Frances Times.



RAG AND PAPER STOCK MARKET.

The rag and paper stock market shows little change this month, as compared with a month ago. A number of

the mills at Holyoke are closed down, the water being low, as is usual at this season of the year, and thus influencing the management to take the opportunity of ceasing manufacturing operations and undertaking repairs. The American mills consume about three-quarters of the waste material collected in Canada, the Canadian mills using chiefly ground and mechanical wood pulp. Only a few of the Canadian mills manufacture the higher grades of paper, such as writing and No. 1 Book, and these are practically the only users of the better qualities of rag stock in the country. Hence the inactivity among the American mills directly affects the rag and paper stock market here. The tariff decision in the United States has had no effect upon the market here, and dealers say that it is not likely to have unless the importation of wood pulp into the United States were made difficult by reason of higher duties. In that case, the market for rag and paper stock here would be strengthened by reason of the fact that an advance in the price of wood pulp would mean that the mills would make use of rag and paper stock for a number of purposes for which wood pulp is now used merely for the reason that it is a little cheaper.

During the month no changes worthy of mention have taken place in prices. As a matter of fact, trade is too light in many lines to make apparent any changes which might have taken place in the situation. At the same time, the volume of business is much greater than a year ago, and dealers are apparently well satisfied with the situation.

Following are the quotations to paper mills:—

(Continued on Page 50).

SUPERINTENDENT wants position: experience in the making of book, news, board, tissue, and specialties. Thoroughly understands coloring and handling all grades of stock. Correspondence solicited. Address "Book," Pulp and Paper Magazine.

SCANDINAVIAN PULP INDUSTRY.

Special reports upon various subjects of commercial interest have at times been prepared for the Weekly Report at the request of the Department of Trade and Commerce. Some time ago in answer to a correspondent, C. E. Son-tum, Canadian Commercial Agent at Christiania, Norway, was requested to investigate and report as fully as possible upon the conditions of the Scandinavian forests and pulp industry, both mechanical and chemical (cellulose). As Scandinavia is the most formidable competitor with Canada for the British market the report should contain much desirable information.

Details were requested along the following lines, which will give the clues to the various paragraphs in the appended report:—

1. A synopsis of the forestry laws as applicable both to Crown and private properties. How is stumpage (or the right to cut and make timber) acquired, at what cost and under what conditions? What are the special provisions, if any; (a) to regulate the cutting, notably as to the size of trees; (b) to preserve as forest lands, all areas unsuitable for cultivation, either on account of their excessive inclination (sides of hills, etc.), their influence upon the flow of streams, or the nature of the soil; (c) to secure adequate protection against fire; (d) to provide for reasonable afforesting?

2. What species of fir and spruce and deciduous trees (quoting botanical names as *abies*, *picea*, etc.), are used in the manufacture of pulp, stating relative proportions of each that are used in the making of mechanical and chemical pulps?

3. Is the supply of raw material practically inexhaustible, considering the mode of exploiting the forests? Is the source of supply becoming too far removed in the case of certain mills?

4. Do the mills directly control a sufficient acreage of forest land, or must they purchase their raw material from

the owners of the land at auction sales, or otherwise?

5. What is the average price of rough wood or barked wood as the case may be, delivered at the mills?

6. State the cost of labor in the mills, the number of working hours per day; also the cost of water power where available, and of steam power in other cases.

7. Do many mills still dry pulp for shipment in large quantities; what is their system for drying it?

8. State cost of inland transportation to shipping points and freight rates to ports in the United Kingdom.

The general rules and regulations regarding the forestry of Norway are contained in a law of June 22, 1863. The first chapter of this law refers both to public and private forests, and is principally intended to facilitate the repeal of certain rights of use, which from old times have appertained to the forests, and prevented the establishing of new ones. An owner of forest lands is thus entitled to demand the repealing of a right to burn "*braate*" scorch heathor sorrel * "*stette*," "*sokke*," "*ævle*" or bark trees. Reference also is made to the right to bark trees and to cutting of branches, the gathering of leaves or in other ways collecting fodder or litter for cattle. Such rights or privileges as mentioned above can not hereafter validly encumber the forests. All other privileges such as the right to cut fencing material, stove wood or other kinds of material, to gather hay or moss—grazing right excepted—can not hereafter be permitted nor be reserved by sale except for a period up to 25 years or for the life time of a husband or wife. Any agreement contrary to this is void.

Further, the law contains a number of regulations that are intended to prevent the injurious consequences of the old rights of use. It is thus provided,

* These words are old Norwegian, and all mean to bark trees.

that a forest owner can demand that the privilege to take material from his forest may be done only under his direction, further that a grazing right shall not prevent the owner from planting or sowing, etc., raising trees on open ground, if he himself defrays the expenses of fencing, etc., and if he does not fence in too much for this purpose, causing a lack of sufficient pasture. On the same conditions a forest owner may also fence in continual tracts of young trees or land where trees are intended to be raised by laying out territory for natural seeding.

As far as pasture rights are concerned, it is laid down that the owner of the forest, without compensation, can fence in certain tracts, when the grazing is not thereby diminished by more than one-tenth of the whole pasture land. In connection with this first chapter of the forest law, it must be mentioned that the allotment law of March 13, 1882, chapter 14, gives both the forest owner and the party possessing the right of use an opportunity under certain conditions to demand the abolition of privileges to pasture, the felling of trees, etc., and to make hay, take peat, heath, mould or moss.

Chapters 2, 3 and 4 of the forest law refer respectively to parish commons, private commons and State commons. The rules contained in these chapters as well as those in chapter 5, referring to all of the commons, are intended principally to define the individual terms referring to the different rights of use owners with privileges and also to adjust the rights of use owners on one hand and the owners of the commons on the other. In connection with this there is a law of July 23, 1894, which gives rights to separate parish commons that belong to several districts or parishes, and a law of August 3, 1897, giving further rules about the election of a board of directors for State commons and parish commons.

Chapter 6 of the law of June 22, 1863, contains rules for the use of forests be-

longing to the government, such as official residences and reserves of mountain pasture forests for the support of widows of clergymen. Chapter 7 principally deals with lawsuit matters.

This law of 1863 otherwise makes no restrictions in the right of a forest owner to dispose of his forests as he pleases. Any prohibition of cutting trees under certain dimensions are thus not found, nor is it required of the forest owner to take care that forest grounds where cutting has taken place are cut or planted. However, as regards this, later laws made some changes. According to a law of August 8, 1908, which took the place of the law of July 20, 1893, permission was given to the different parishes with the consent of His Majesty the King to fix certain rules for the mode of dealing with the so-called "Vernskog" (protecting forest). Any forest which may be deemed to serve as a protection against slides, the inundation of a river, sand storms or for protection of other forests or settled country, is defined as such. These regulations refer also to boundary or mountain forests, which on account of their situation far up on the mountains, near the ocean or the very far north, have so little growing capacity, that it is feared they will die out entirely, if misused or cut too much. With protecting forests are also classed forests which have been cut out, but which in time may be expected to become of some importance as protecting forests.

Previous to such rules being put in force, it shall be ascertained beforehand how much of the forest areas of the parish are to be considered as protection forest and the boundaries for these fixed. A parish board can also, with the sanction of the king, draw up certain rules for the prevention of the destruction of the forests. Such rules shall apply to all forests in the parish and shall contain general directions for the use and treatment of the pine woods or

the different sorts of trees as well as similar rules for the leaf trees separately or the different sorts of same. Trees growing in the home pastures may be excepted.

In the rules referring to protection forests and to forests in general, there may, besides the usual rules appertaining to the situation of the forests, be taken in certain minor rules, viz.:—

1. That there shall be different regulations for cutting for sale, the utilization in industrial establishments, export from the country and use for other purposes.

2. That the forest owners or right owners with right of use are to use as much as possible dried out trees before fresh ones are cut, if the dry trees are serviceable for the purpose without disproportionate difficulty and expense, and that under the same conditions it shall be prohibited to use certain woods for fencing material.

3. That the scorching of ling, juniper or moss shall be prohibited, except in cases where such scorching is done with the permission of the forest inspectors to increase the growth of the trees.

4. That the forest owners or owners with right of use have to pay the inspector who superintends the taking out of trees to be felled and other similar work for them in their forests.

Tax on Timber for Sale or Export.

In laws after the law referred to above it is further stated that for the promotion of the renewed growth of forests, there shall be reserved a certain tax on the timber or the material produced either for sale, for industrial uses or export from the country, such tax not to exceed 20 oere (5.33 cents) per dozen on logs 4.16 yards in length with 6 inch top, or half that amount, per cubic metre. In order to make control of this payment easier, it is ordered that every forest owner within a certain time fixed by law has to send in a statement of

the lumber or material subject to such tax for the past year. The money which is derived from these taxes shall be placed at interest in an authorized savings bank, and from the amount of the taxes plus the interest, the forest owner is entitled to regain gradually his outlays in renewing the growth of the forest. When such work is no longer necessary the amount remaining is to be paid out to him. In order to see to the administration of these rules there may be elected a committee of five members. The forest law of August 8, 1908, does not refer to forests disposed of by the government.

By a law of July 14, 1893, together with the supplementary law of July 29, 1896, certain rules are fixed for the prevention of forest fires. It is thus forbidden under penalty in dry weather or in strong wind to make a fire in forests and fields under such conditions where by a forest fire might be caused by it. During the months of June, July and August the burning of "braate" or scorching of ling is forbidden, and at all times the renter or user of farms or forest properties must not do such burning or scorching without the permission of the owners. Except when absolutely necessary fire must not be made in another person's forest in June, July and August without the consent of the owner or renter.

According to this law a parish is given the power through a resolution sanctioned by the king, to formulate rules for the prevention and extinguishing of forest fires, the manner in which the rules are to be enforced as well as the way in which the necessary means for this purpose shall be raised. By these rules it may be imposed upon every owner, manager or user of registered ground to take over the enforcement, of the rules and to conduct the work in extinguishing fires; and in addition every able man living in the parish is bound to turn out, upon being notified, at the place of fire, to assist in the work of subduing it.

By a law of February 10, 1908, it was resolved that a contract for the felling of trees in the forests must not be made for a longer period than three years. Further, in the sale of property, the principal value of which is the forest, it is forbidden to reserve the right of re-buying it, for a longer period than three years. Any agreement that does not conform with the above regulations is considered void, that is every agreement which permits felling in another's forest other than for household use or use on the farm.

Property rights or renting rights to forests can not according to law of June 12, 1906, be obtained by foreign citizens or by a company whose members are not all personally responsible, except by permission from the king. Such permission, however, can not be given unless the company has offices in Norway. Even if the buyer is a Norwegian citizen, royal permission is necessary for the purchase of forests of a larger area than 250 hectares, and under the following conditions:—

1. When the purchaser has a share in the management of a company whose business embraces trade with or utilization of forests or forest products or is in the employment of such a company.

2. When the purchaser has not during the last three years prior to the contract been or continually lived in the parish in which the property is situated.

It is to be noted, that the laws regarding the granting rights to foreigners, stock companies or parties living outside the parish, to obtain forests by purchase, are only temporary, and that a proposal for a final law is in preparation.

With the view to preventing the destruction of forests in the northern parts of the country it is prohibited according to a law of June 27, 1892, to export lumber from the counties of Nordland, Tromsøe, and Finmarken. From this, however, the king may give dispensa-

tion on the recommendation of the jurisdiction of the county.

2. For making of wood pulp or cellulose common Norwegian spruce (*picea exelsa*) is used as well as some asp (*populus tremula*) and other different kinds of leaf trees. For sulphite, fir is sometimes employed, but not frequently.

To make one ton of mechanical pulp, 50 per cent. water, there is required one calculated "tylvt" (12 logs) of "12 alen length, 6 toms top" each in Norwegian measure, equivalent to 4.15 yards, 6 inches, or 2 cubic metres of wood. To make a calculated ton of dry sulphite or paper about 4 cubic metres of wood is required.

3. The supply of raw material can not be said to be inexhaustible. If the material is as well utilized as during later years, down to the smallest particle, and if the forests of the country are well taken care of, it is contended that they ought practically to satisfy the demand of the present mills. About this, however, it is difficult to express anything definitely; but it must be considered certain, that the starting of more mills, cellulose factories, etc., will necessitate the import of raw material from other countries, as is partly the case now.

4. Some mills or factories own large areas of forests, but the most of them very little or nothing at all. All are obliged to buy raw material to satisfy their demand. The raw material is most commonly bought through private negotiations, seldom through bids or at auction sales.

5. The average price of the raw material is 7-8 Kroners (\$1.86-\$2.13) per cubic metre, or about 15 Kroner (\$4) per calculated tylvt (12 logs), measuring 6 alen (4.15) yards in length, with 6-inch top, delivered at the factories.

6. The average wages paid in 1905 were:—

Cities	Kr.
Mill hands	2.58 = \$0.69
Sulphite hands ..	2.84 = 0.76

In the country the average paid was Kr. 2.80 = \$0.75, and Kr. 3.11 = \$0.83, respectively. Lately these wages have gone up somewhat.

The hours of work are usually 9 to 10 hours per turn, two turns during the 24 hours.

Concerning the cost of the water power or steam power nothing certain can be said. Water power is not usually rented—the water-fall is bought.

7. While wood pulp for export is no longer dried in large quantities, the contrary is the case with sulphite.

To illustrate this there will be found below a statement of the export of wood pulp and sulphite for the years 1904 to 1907:—

Year	Wood pulp		Sulphite	
	Wet tons	Dry tons.	Wet tons	Dry tons
1904	10,140	901	771	12,478
1905	10,502	1,099	630	15,389
1906	12,135	927	482	18,439
1907	15,353	1,210	478	17,677
1904-07	48,130	4,137	2,361	63,983

The wood pulp is dried by the use of Engineer Fr. Hiorth's patented drying tower. The sulphite is dried in a kind of paper machine.

8. About the inland freight nothing certain can be stated, as it is quite different for the different mills. The freight to England is about 7s. 6d. per ton for wet and 10s. for dry pulp. About the same is paid in freight to other European countries. Even to America the freight is not much higher.



SOME NOTES ON REASONABLE MILL ECONOMIES.

First Paper: The Saving of White Water Waste.

The British Empire dominates the industrial world. Its products go to all the markets of the earth in the face of

foreign competition. The only possible reason for the possession of these markets—the only hope of holding them—is that the British manufacturer knows how to produce a better article than his foreign competitor can make; or as good an article at a lower cost of production.

That is why American cotton still goes in bales to Liverpool and comes back as finished print goods.

That is why the New York business man still wears Scotch chevots.

The strong grip upon the markets of the earth which the British manufacturer holds has no other force like this.

The Canadian manufacturer starts with the great advantage of this British training and policy. And he is finding that, to maintain his position, he must overlook no feasible refinement, no wise economy, of process.

He knows that the enormous chemical interests of Widnes and Runcorn owe their present wealth to the employment of perhaps fifty distinct economizing processes for utilizing what was once waste. He knows that even with the wonderful natural wealth of Canada at his disposal, the real, permanent success of his business rests upon continual improvement, upon the steady increasing of the net efficiency of his industrial processes.

Twenty-five years ago such a statement would have been untrue. The struggle was then only to produce an immense marketable output at a profit, no matter how great the waste. Low grade ores were despised. Timber was cut without care for future supply. There was ore enough. There were millions of acres of timber lands. But to-day, the entire world is busily scrutinizing every item of production-costs; every foreign manufacturer is steadily raising the efficiency of his processes and calculating every possible factor of true economy. So that now our industrial position depends not upon selling our resources for profits; but upon investing and conserving them so scienti-

fically that they may improve and not diminish.

The rewards of such wise control of our industrial assets are enormous; the penalties of indifference are heavy. Already we have seen the British sovereignty of the world of industrial steel and iron disputed by foreigners who have studied more successfully than we have the economies of manufacture, the refinement of processes, the avoidance of most of the waste and the utilization of the little remaining waste.



Fig. 1. Fragment of No. 100 screen used as a cylinder mold covering on a pneumatic save-all, with some bits of fibre caught and saved on that screen. Fibre and screen are magnified nearly 100 diameters. Note the fineness of fibre in comparison with screen.

So delicately poised are the international balances of industry that an advantage of but a few cents per ton in the production of, for example, railroad iron, determines the whole tendency of

the world's trade. Carnegie laughed to scorn the swaddling clothes of the tariff, declaring that an industry as solidly founded on great economies as his needed no help. It was the other fellow who needed helping.

Our pulp and paper industry has become, within the past few years, one of the bulwarks of Canadian wealth. It is growing; improving; evolving better products, nicer economies. It is following the British principle of holding its own by efficiently, scientifically utilizing natural resources and natural expertness.

Nevertheless, the pulp and paper industry to-day is one of the most wasteful industrial processes in existence. It is estimated that for every ton of raw materials that goes into the grinders and digesters, only two-thirds emerge, at most, as useful product. The remainder is partly an unused waste; partly an inferior product re-used, at the cost of added power and labor charges, to produce inferior results.

Suppose that gold mining were conducted on similar lines. Yet the world's demand for paper is hardly secondary to its demand for gold.

Suppose that a Lancashire cotton mill, feeding a pound of sea island staple into its carding and spinning rooms, produced scarcely more than half a pound of fabric,—and sent the balance back, as tangled waste, to make a cheap waste product, or blew it out of the ventilators as so much dust. Yet the waste of the raw stock in paper making still goes on in somewhat parallel ways—whether by direct, outflowing loss, or by the secondary loss of inferior production through defective methods of utilizing it.

It is not too much to say that the future of the pulp and paper industry rests chiefly upon the means to be employed to eliminate these losses; upon carrying further the present tendency to improve; upon not being satisfied with one pound sterling of value if there is a guinea's worth to be had.

And there is. For every pound of value that the pulp mill turns out it might produce a guinea; in some instances the increase would be vastly greater. And that would be a good start toward further improvement. We spoke of the cotton dust floating in the air of the cotton mill; a loss that has been reduced to a very insignificant quantity. We now speak of the impalpable fibres held in the waste water—the “white water”—of pulp and paper mills. And this loss, as a rule, is far from being a negligible quantity.

It makes no difference that you can hardly see it. A ton is a ton, whether it is pressed together into dry “laps” or spread out through half a million gallons of water. Its cost is the same, its quality the same, its marketable value is the same—if you can catch it.

How much does it amount to? That is beside the mark for the moment. When you drop a coin on the floor your instinct is to pick it up. Then, when you have got it, you glance at the imprint, but pocket it again whether it is a farthing or a quarter.

But, how much is this waste fibre? It varies with the mill and the character of stock, equipment and labor. But in hundreds of mills where conditions as they really exist (not as they theoretically exist) have been certified to, three tons of fibre go absolutely to waste for every ninety-seven that go to market. This waste occurs inevitably in the normal operation of the machinery. It occurs through undetected leaks; through breaks and wash-ups; through the defects of packings, screens, felts, and at every stage of the process. The waste is greater than the income-earning power of the entire marketed product of the mill if exchanged for high-class securities—great enough to pay interest on a bonded debt larger than any pulp mill ought to have; great enough, in the course of a few years, if saved, to constitute a reserve of capital for any ordinary panic or emergency; great

enough in some cases to build a new plant of equal capacity.

We said three per cent. The statement is true, but it is not the whole truth. To give the entire truth we should say that, for every hundred tons of ground wood or sulphite fibre supplied, at least three per cent. goes to waste as stated. Boards of directors may scout the idea; superintendents may not believe it; hasty tests may not confirm it. But the statement is based on the examination of hundreds of mills by experts who, though they have found cases where the white water waste was nearly ten times three per cent., have never found a case where it was negligible according to modern ideas of economy. A pound of fibre mixed with a pound of water forms a fairly solid mass. But a pound of fibre mixed with a ton of water makes little show. It seems too insignificant to bother with. Yet it is worth just as much as that other pound. It is the old truth again that a pound of feathers weighs just as much as a pound of lead.

Now, whenever a form of waste appears in any industrial process, after a time the way to save it appears also. There is usually one way—the right way. Rarely there appear two or more ways. But the light, impalpable character of waste fibre held in suspension in waste water shuts out many proposed means of saving it. The means must be as delicate as the fibre; and of all ways suggested for this purpose the pneumatic method is at once the most gentle, most positive and most efficient.

You may filter the waste; but the filter will pass the fibre through unless you make the screen so fine that the very fibres you wish to save will choke it up. You may settle it, and still the fine and delicate fibres remain in suspension unless you have enormous tanks and a surplus of time; and even so you are fortunate if the fibre does not turn to slime during the process of reclamation.

You may catch it on a revolving cylinder mold and, pressing a couch roll

upon it, take it off with a scraper. But, if the couch is firm enough to serve, it will press the fibre through the screen, either choking that or losing a great part of the fibre. Moreover, the screen, if fine enough to serve, will quickly be rubbed to pieces. This is the cause of the poor efficiency of the typical pulp thickener, and the reason that, as a means of saving waste, it has been so generally abandoned.

But you may cause the waste water to be sucked against a revolving cylinder mold. You may make this suction so

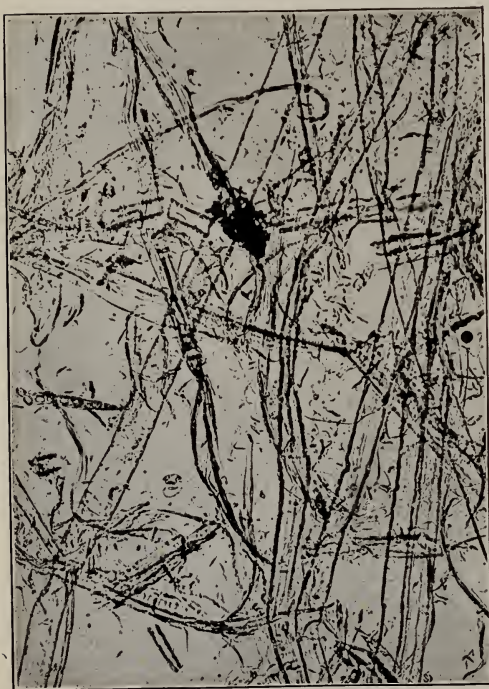


Fig. 2.. Separate view of the fibre shown in Fig. 1.. Fibre here shown magnified (as in Fig. 1) nearly 100 diameters.. Compare this fibre with the screen on which it was saved in a pneumatic Save-All.

light that it is powerless to force the fibre through, yet perfectly able to draw all the water through. You may hold this film of fibre against the screen, out of water, till it is as dry as you wish, and then lightly blow it off with a blast

of air onto a deflector. You may thus use as fine a screen as you wish because there is nothing to injure it and nothing to choke it up, for it is never pressed full of fibre, and all the fibre that rests upon it is blown off clean by an air blast once in every revolution.

You may thus save automatically, simply, absolutely, practically, one hundred per cent. of the waste, without the least impairment of its value, without separating the different lengths of fibre, and in perfect condition to use again at once or store indefinitely. You may do this at a cost of ten cents a ton of air-dry stock reclaimed if you have fair or average conditions; for less if the mill is large, and but little more under the poorest conditions.

The pneumatic save-all, in fact, has solved the industrial problem of saving waste fibre and has demonstrated that this waste commonly runs to much larger values than was supposed.

In action this device is a surprise to anyone who sees it for the first time. Placed where it will catch the waste from pulp or paper machinery, its revolving pneumatic cylinder mold shows up a steadily forming film of thickened fibre. If, at any moment, there occurs a break or other leak anywhere in the operation of the mill, there instantly appears on the cylinder a heavier deposit of fibre, proclaiming the leak and at the same time automatically taking care of the extra waste. The device, therefore, though it requires no attention, is in effect a perfect tell-tale to announce extra leaks, and to prevent their resulting in any loss even if they are not at once noted.

Just why the pneumatic action of this device should be so wonderfully efficient in catching the waste is difficult to explain, except for the general reasons stated. It is apparently the natural method of catching and saving waste fibres, and as such it has put the saving of pulp and paper mill waste on a higher footing than ever before. The extreme efficiency of the method is somewhat crudely shown by photographs of what

goes on when the machine is in action, these photographs being taken under a microscope of moderate power. For instance, Figure 1 shows such a photograph of a pneumatic save-all cylinder mold covering. The piece cut out for the photograph is really smaller than the cross section of a pencil lead but is here magnified about one hundred diameters. It is a fragment of a No. 100 screen, much finer than could be used on an ordinary pulp-thickener on account of the destructive action of the couch and the quickness with which such a screen would get clogged up. But it is an average fineness for use on the pneumatic device where there is no couch. Upon this screen is shown some of the fibre which has been saved on this identical screen in a Pneumatic Save-All.

Figure 2 shows separately a fragment of this same fibre, actually saved in the pneumatic save-all on this identical screen. The fibre also is enlarged about one hundred diameters. By comparing the fibre with the screen it will be seen that it is not only excessively fine, but is actually far finer than the mesh of the screen. In short the finest and most valuable fibre is saved just as completely as the coarser bits. Still higher magnification would show that these fine bits of fibre (apparently fine enough to pass through the screen) are united into a somewhat felted mass by still finer threads and by particles of adhesive size. The pneumatic action has no force to push these bits through the screen; hence they are all saved. Practically 100 per cent. of all waste is thus saved.

The sample illustrated is in itself proof of this, being part of a day's run at a representative pulp mill, and actually saved over ninety per cent. of it, at least, in the manner stated.

The process has the simplicity of all great inventions and an efficiency which it would appear difficult to match.

Its significance, in the further developing of the pulp and paper industry

on a higher profit-paying basis, is being demonstrated every day in a remarkable degree.

WANTED

Correspondence with parties interested in starting a mill for "natural" brown steamed wood-pulp and paper. The advertiser is a specialist in this line from Scandinavia. Highest testimonials. Address C. E. B., c/o Pulp & Paper Magazine of Canada.

WANTED

A good second hand cylinder paper machine 80" or 90" face, with wet part. Must have at least 15 to 20-36" dryers or about same drying surface. Send all particulars with blue print to H. P. S., c/o Pulp & Paper Magazine.

WANTED

Position by a first class Sulphite maker with many years experience on bleached and unbleached chemical fibre for all grades of paper; address "Expert" care of Pulp and Paper Magazine.

WANTED

Position as superintendent or buider of Sulphite Pulp or Wood Pulp Paper Mill. Wide Experience abroad, (U.S., Scandinavia, Russia, etc.) as well as in this country. Highest testimonials for economical construction. Consumption of sulphur in last mill built 8%. (As against 12-18%) Brown Mech. Pulp and Paper (= imitat "Kraft") a specialty. Correspondence solicited. Address, R.S.T. c/o this paper.

WOOD PULP AGENCY.—Advertisers, who possess extensive storage accommodation, with Railway Siding, on the North-east coast of England, and in established connection with Paper Mills, are desirous of taking an agency for the sale of Wood Pulp. Terms, etc., in strict confidence, by letter in first instance, to Box 3, Pulp & Paper Magazine.

CIGARETTE PAPERS.

Tastes in cigarette papers vary in different countries; for instance, the Russian prefers a hard lustrous, transparent paper, while in other countries the preference is just the reverse. The Russian cigarette papers are made from specially silky wood pulp fibres in Fin-

land, whereas in other countries the desired character is best obtained with rag fibres. The paper must be porous, but well felted, and it is customary to add magnesium carbonate to increase the porosity, and thus to insure a uniform combustion. A soft porous paper is also necessary to facilitate the rolling and adhesion of the cigarette tubes. A paper of fine quality is composed of 25 parts of new linen cuttings, 20 parts of hemp twine waste, 25 parts of linen twill, and 30 parts of cotton rags. The hard materials, twine and flax wastes, must be thoroughly well boiled with a strong alkaline liquor, while the softer rags require a milder preparation. Great care, says *Der Papirfabrikant*, must be taken to exclude all tarred rope and twine, since it would be almost impossible to eliminate all the flavor of the tar. Since the paper must not have a parchment-like character, the heating process must be conducted very carefully.

Many cigarette smokers are under the delusion that the paper is the purest cellulose, and is merely the indispensable medium whereby the tobacco, or what passes for such, in the interior of the cigarette is kept together. It has occurred, nevertheless, to certain wide-awake cigarette makers to impose another function on the paper, namely, to give the white ash which is demanded by many people both from cigars and cigarettes. Hence the paper must not be pure, but must be loaded with a suitable substance. It is clear that this substance itself must fulfil several conditions. It must not interfere seriously with the combustion during the smoking of the cigarette. It must be tasteless, and as far as is reasonably practicable it must exert no injurious action upon human beings. Yet another point is that it must do its work in comparatively small quantities, so that the paper is not made brittle by its presence. The rolling of the cigarettes in the fingers in the process of making is a severe ordeal for a heavily loaded paper. The

fillings used are chiefly carbonate of magnesia, or of lime, or a mixture of the two. The heat attending the smoking of the cigarette expels the carbonic acid from these salts, and the ash, i.e., the free bases, magnesia and lime, has exactly the properties required. The residue is perfectly white, and is bulky enough to conceal any undesirable colour manifested by the ash of the tobacco.

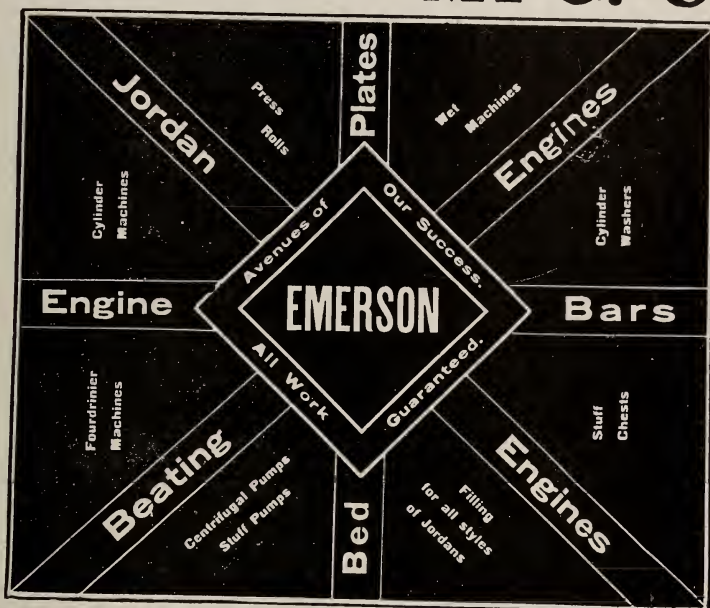
The ash of the paper in the cigarette cover is entirely a negligible quantity. Again, the magnesia and lime, constituting by far the largest percentage of the ash, have just the exact amount of coherence necessary. They will not fall about on the smokers' garments by their own weight and yet are readily flicked away with the finger. Further, as they are formed they are in a sufficiently porous state to enable the air to penetrate freely through them on its way to burn the tobacco.



MARKET FOR WRAPPING PAPER.

Large quantities of wrapping paper are imported by Newfoundland firms from the United States, Germany and Great Britain. One of the largest importers in St. John's recently stated that the prices of Canadian paper manufacturers are not competitive. The quality of Canadian paper is excellent, and owing to her proximity which would favor speedy deliveries, there is naturally a desire to transact business with Canadian firms if favorable quotations are received. Samples of the wrapping paper required have been placed in the hands of the various Canadian manufacturers, and it is hoped that every effort will be made by them to secure a portion of the trade. Inquiries have also been received at the office of the Canadian Trade Commissioner at St. John's for printing paper in rolls 54½ inches wide, which at present is imported from the United States and Europe.

EMERSON MFG. CO.



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THE UNITED WIRE WORKS LTD.

Edinburgh, Glasgow & Newcastle on Tyne.

FOURDRINIER WIRES CYLINDER WIRES

Wire Cloth all meshes, in Brass, Copper Bronze & Steel.

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Wires held in stock at Montreal for prompt delivery.

Make Denatured Alcohol for 8c. a Gallon

The navies of the world adopted tax free commercial alcohol for smokeless motive power for ships. It saves boiler room, coal room, handling of fuel, and is a little cheaper than steam power. Just think! 85 per cent of water is the principal part converted into alcohol by chemical action in contact with fermented vegetable waste matter, saw dust, wood syrup and lime or any carbo-hydrate. Combining with 94 per cent, oxygen or atmospheric air when used for motor power, heat or other light purposes. The real denatured alcohol opens an absolutely new market for the use of saw mill waste, pulp, paper and chemical fibre mill waste product, and for millions of tons of farm products, that even the world's greatest monopoly cannot touch. Our denaturizing distilling apparatus is constructed of steel plate, galvanized, and the highest grade seamless copper tubing, tested to 300 lbs. pressure. Its conductivity makes possible the instantaneous hot steam alcohol distilling. A very simple but serviceable still and doubler, that will produce 100 gallons tax-free denatured alcohol daily for 8 cents a gallon. That what is the most difficult to secure is that which we prize the most. No speculative futures, the market demands the product. The motor boats, the automobiles and the navies of the world will use it. Unquestionable references. We are ready to negotiate with responsible individuals on very liberal terms.

This wood waste alcohol distilling apparatus is of untold benefit to farmers, lumbermen, varnish makers, paint manufacturers, soap makers, paper, pulp and chemical fibre mills, etc., for the utilization of wood waste by distillation which puts real denatured alcohol beyond competition with gasoline or kerosene.

Do you want to be a progressive good fellow? Then establish this new infant industry at home. It will yield a most profitable income. Address to-day:

WOOD WASTE DISTILLERIES CO.,

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Paper Manufacturers. Printing and Writing Papers.

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TORONTO, 23 Scott St.

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*** BAMBOO FOR PAPER MAKING.**

FOR SALE

- 1 WET MACHINE, 78" wide.
- 2 HYDRAULIC TRIPLEX PUMPS, 1 $\frac{3}{4}$ " dia.
of plunger, 4" stroke, pressure 1,500 lbs.
- 1 HYDRAULIC TRIPLEX PUMP, 1 $\frac{3}{8}$ " dia.
of plunger, 6" stroke, pressure 1,500 lbs.
- 2 HYDRAULIC PRESSES, cylinder 20" dia.
daylight 4'-3", lift 32", size of platen 30" x
40", pressure 1,500 lbs.
- 1 KNUCKLE JOINTED BALING PRESS,
daylight 5'-8", lift 2'-1", platen 24" x 36".
- 1 HYDRAULIC ACCUMULATOR, 9" ram
by 10' long, pressure 1,500 lbs.

All in good order. Apply

Jonquiere Pulp Company
JONQUIERE, QUE.

This interesting little book, which is printed on paper made from bamboo, is a fitting illustration of the growing feeling of the need for new papermaking fibres, due to the partial exhaustion of the pulp wood areas in many parts of the world. Whether bamboo will ever fill the bill is a moot point. But as to this, the author is well qualified to speak, having spent several months in Bermuda for the sole purpose of making investigations on the spot. The result is described.

* Bamboo for Paper Making. By R. W. Sindale, F.C.S., Chemical Engineer and Consulting Chemist to the Paper Trades, Lecturer, etc. Published by Marchant, Singer & Co., 47 St. Mary Ave., London, E. C., Price, 2/.

..The..

Fibre Development Co.

APPLETON -- WIS.

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Water, Electrical and Steam Power Plants. Specialists in the manufacture of Paper and Paper Fibres. New mills built, equipped, and placed in operation. Old mills remodeled. Results guaranteed.

New Propositions investigated by Experts.

How to Increase the Effective Production of Pulp and Paper Mills

DIVIDENDS depend upon keeping production costs down for any given quantity of product.

Hence, the importance of studying and applying every *genuine, successful and demonstrated economy*.

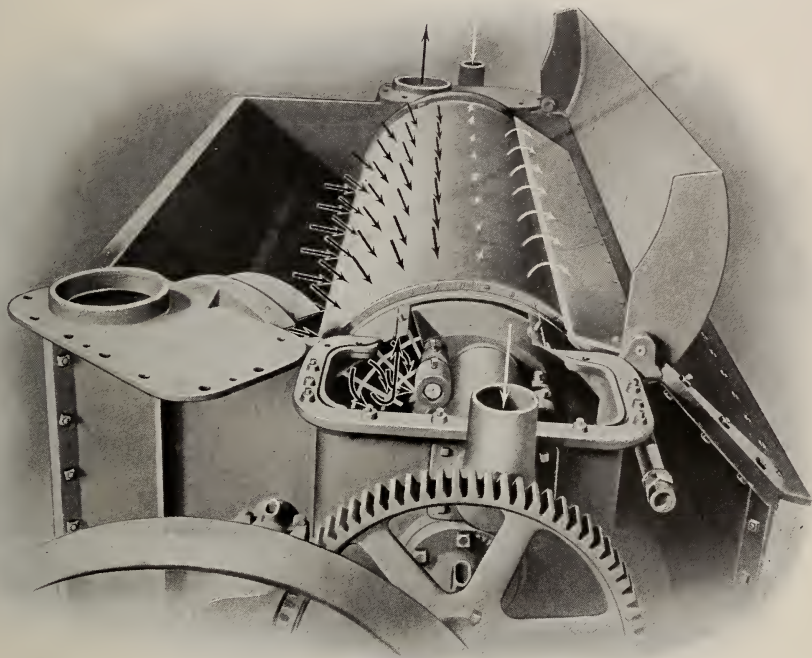
If you can make and market one hundred tons of product with the same amount and cost of raw materials that now produce ninety tons, what will this mean in increased dividends and in surplus?

Some mills, by working these problems out still further, are yielding now an output of one hundred tons with the same input that formerly gave only seventy-five tons. What does *that* mean in dividends, surplus, success of management, in opportunities to increase the plant?

Take one element alone—white-water waste. In this one detail probably an average of at least three per cent. of the total North American production of ground wood and sulphite goes to waste. That is the average result of many hundred tests. What does that mean in money?

There is no need of losing this amount. The means exist for reclaiming practically every penny of it. Some mills have come to look upon it as an unavoidable loss, but even these are being convinced when the right way is shown to them, and supported by a rigid guarantee.

The illustration shows a mechanism that is now reclaiming annually more than a million dollars' worth of this waste. It is a revolving cylinder mold fitted with pneumatic valves and piped to a blower. The cylinder revolves in the white water; the waste is drawn by suction upon the screen, held and partly dried there while the filtered water flows through and escapes. When the reclaimed stock is sufficiently dry (upon approaching the inclined plate at the right), it is blown off by a blast of air.



This action—automatic, uniform, continuous—is the basis of the Pneumatic Save-All. There is no couch to rub the fibres through or to wear out the screen. Hence, fine screens are used. Yet they do not choke up, because of the air blast. With these fine screens far finer fibre is saved than the same screens could save without the pneumatic action, and the capacity is (because of this action) enormous.

If with this device you can save over ninety per cent. of your waste at a cost of a few cents a ton, and sell it for exactly as good a price as you get for your standard product, what will that fact mean to you each year in money?

Let us tell you all about the Pneumatic Save-All.

A good way to find out, first, is to send us a sample of waste water for testing. We have sample-mailing cases for this purpose.

SHERBROOKE MACHINERY COMPANY
SHERBROOKE, QUE. LIMITED

(Continued from Page 258).

Shirt Cuttings—	Per 100 lbs.
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50
Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00
Overall Cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50
Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 25 to 0 35
Roofing Stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50
Sundries—	
Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25
Mixed cotton rags ...	1 00 to 1 25



THE MARKETS.

Toronto, Sept. 11, '09.

There can be no doubt that the new United States tariff and the various reports of the ways in which it will work out to the detriment of Canadian exportations have exercised a very unsettling effect on the Canadian pulp market. At the same time in spite of these adverse influences, the market for ground wood has grown very perceptibly firmer during the last few weeks, and many inquiries are to hand from the United States. It can scarcely be said that prices actually offered are much higher than they were a month ago, and they stand at about \$17 to \$18 at the mill or \$24 to \$25 delivered; but there is a distinct indisposition to quote these prices for far in the future, and a regular ad-

vance is looked for by some in the trade. The continued drouth in the northern and north-eastern States has brought about a scanty production of pulp there. Sulphite sells at \$40 to \$42 with a firm tendency caused in part by the strike and lockout in Sweden. In the paper trade the optimism noted a month ago is increasing, and while the volume of trade is by no means large, a feature partly accounted for by the season, the feeling of the market is firm.



SWEDISH MARKETS.

According to latest reports the employees' side of the pulp mill conflict is beginning to feel the lack of money, and shows a greater disposition to mediation. Some of the paper mills have resumed operations, and as this takes up what stocks of pulp there are in the country, it does not improve the position of the British paper maker, as it makes his supplies more difficult to get. At the same time, it cannot be said the latter is worrying much.



BRITISH MARKETS.

According to the World's Paper Trade Review, the demand for mechanical is quiet, but holders maintain a firm attitude. For chemical pulp also the market shows considerable firmness and with an increased demand, higher prices are expected to rule.

The market for esparto shows little movement. For domestic rags the market, though showing no great activity, has a hardening tendency. The demand for foreign rags is still quiet. Shipments under contract of higher grades are fairly heavy. Demand for china clay and other fillings is better but prices are unchanged.

For chemicals, the tone of the market is quiet and prices are practically unchanged. Bleaching powder is £4.7s.6d. to £4. 10s., caustic soda (77%) £10. 15s. to £11; sulphur, £5.5s.

Telephone: 2726 BROAD.

Cable Address: "LAGERLOF NEWYORK."

Scandinavian-American Trading Company,

PRODUCE EXCHANGE BUILDING, NEW YORK,

IMPORTERS AND EXPORTERS OF

FOREIGN AND DOMESTIC

WOOD PULP

OF ALL KINDS

AND

PAPER MILL SUPPLIES.

HANS LAGERLÖF, PRES.

PANZL'S PATENTED LINING COMPOSITION

IS THE SAFEST AND BEST MATERIAL FOR

LINING OF SULPHITE PULP DIGESTERS

AND ACID RECLAIMING TANKS

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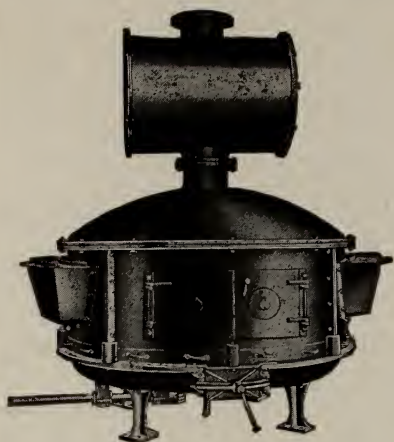


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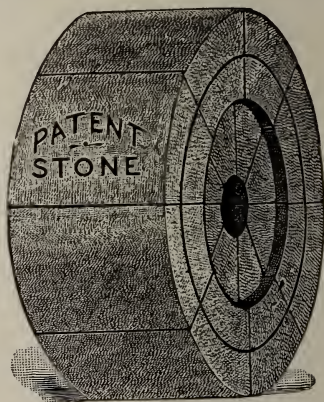
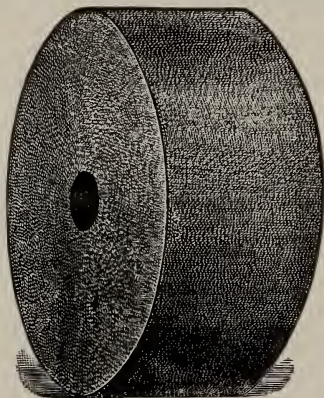
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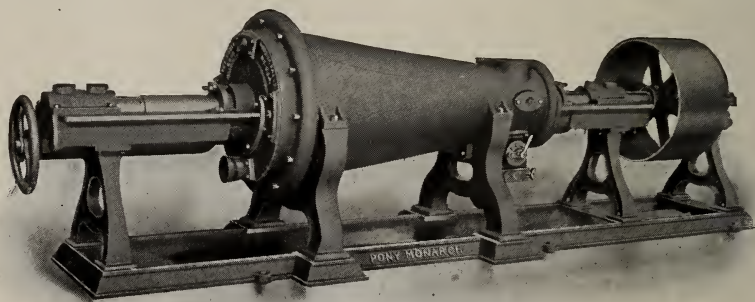
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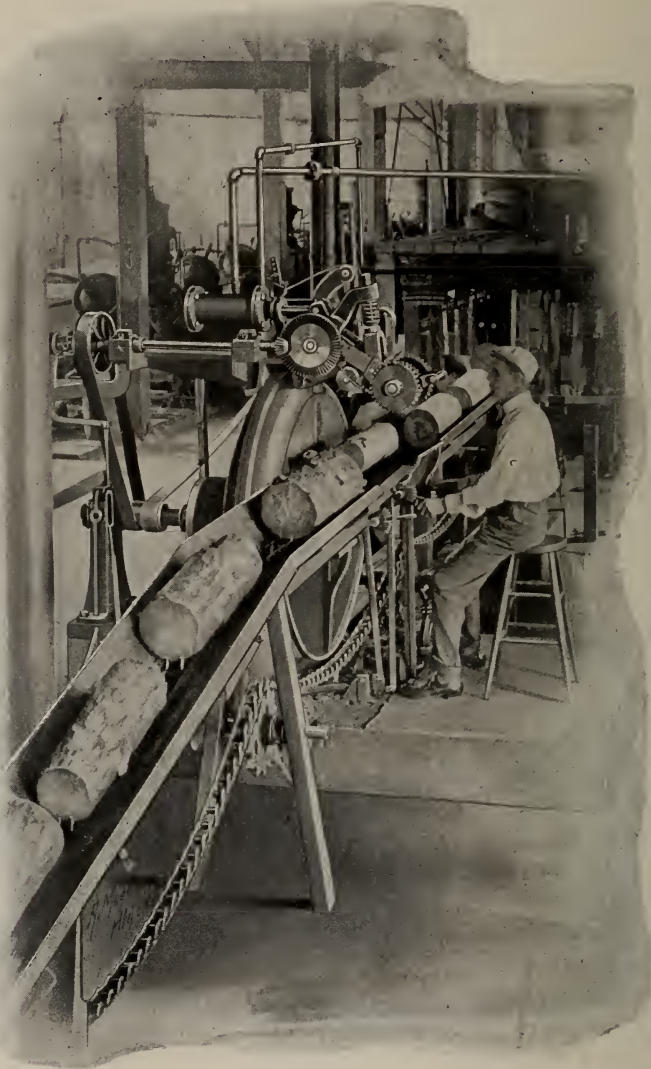
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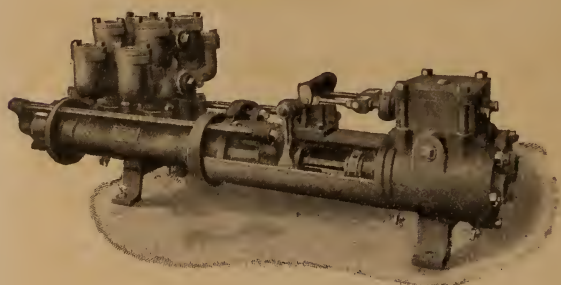
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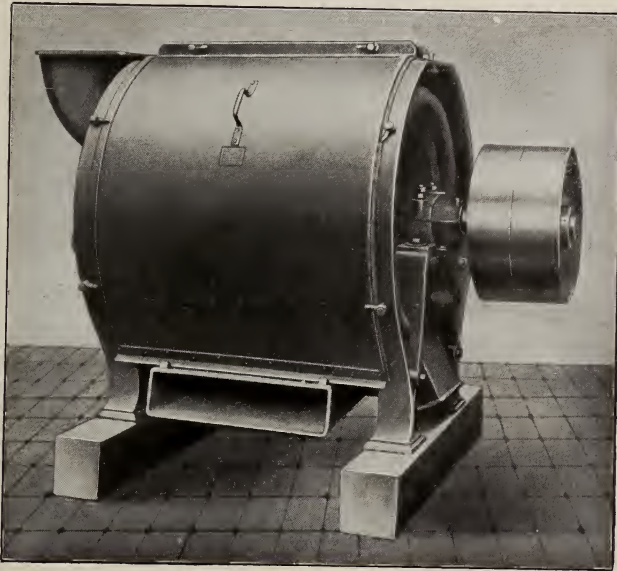
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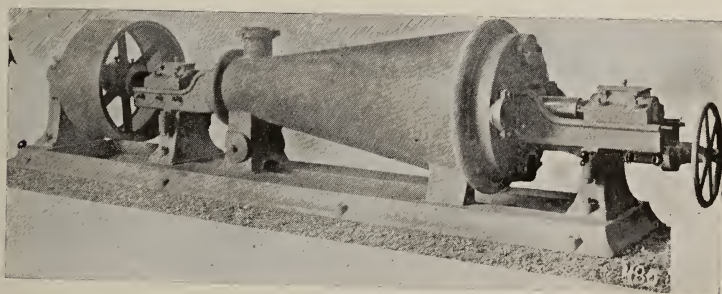
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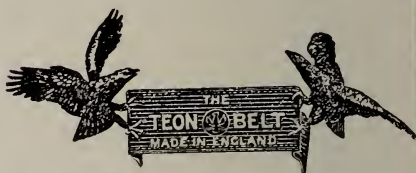
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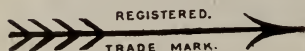
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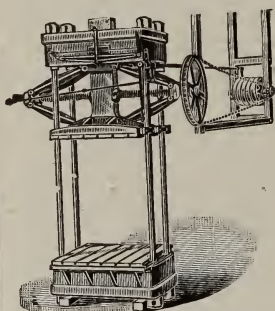
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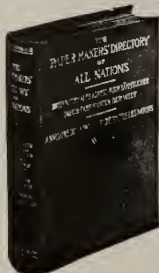
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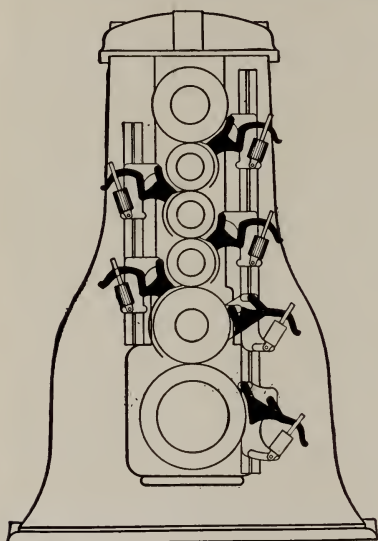
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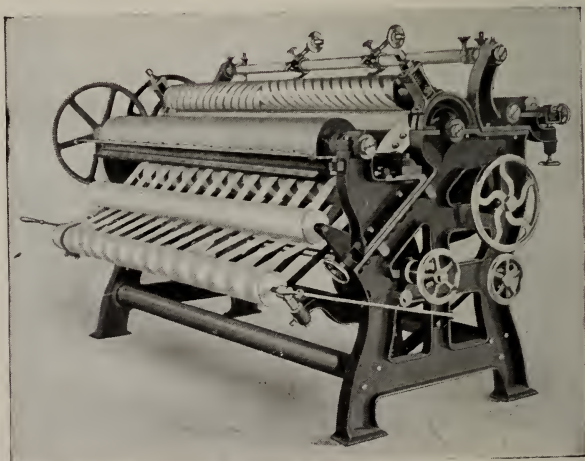


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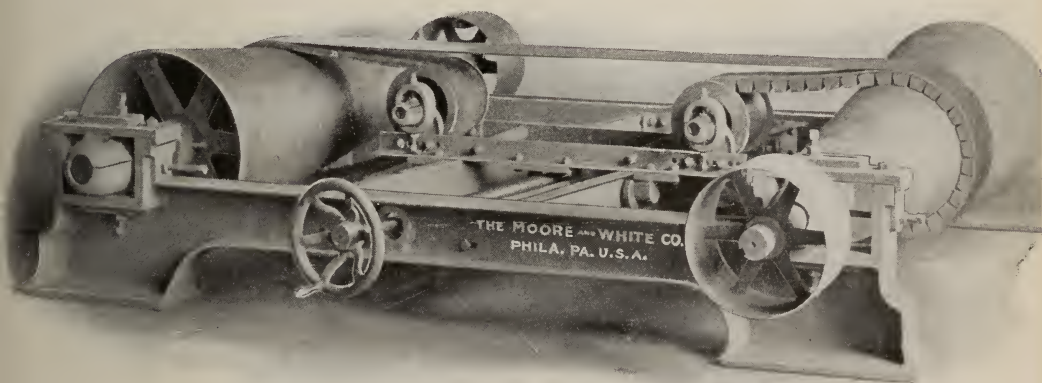
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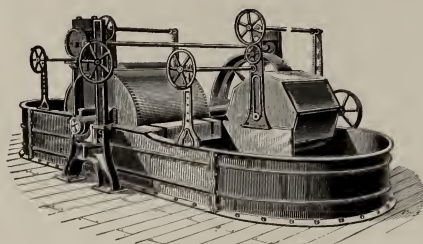
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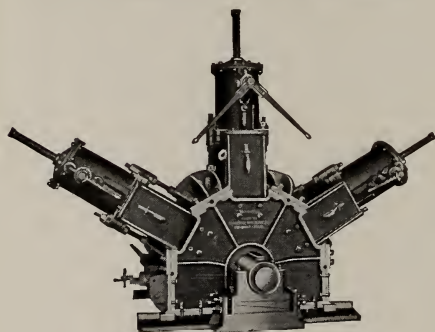
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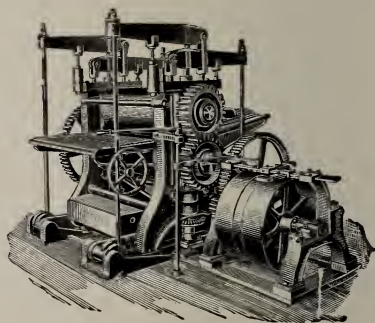
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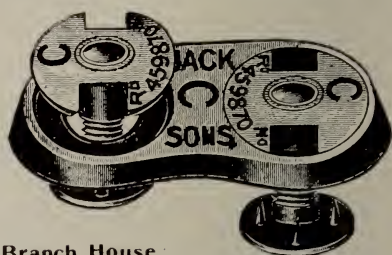
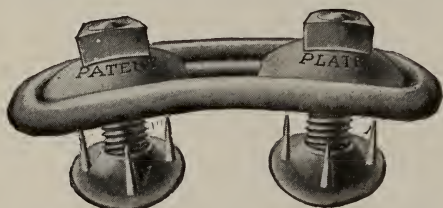
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 10.

TORONTO, OCTOBER, 1909.

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Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year. United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

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PULP WOOD RESOURCES OF MANITOBA.

It is not generally realized that the Province of Manitoba possesses considerable potential wealth in its pulpwood areas. This is more particularly the case in the territory covered by what may be styled the drainage basin of the Winnipeg River. According to a report by W. Thibaudeau, C.E., to the Dominion Government, this basin alone, exclusive of ten miles on each side of the C.P.R. track and not counting farm lands has an area of 1,840 square miles. This, added to the drainage basin of the English River, in Keewatin, which joins Winnipeg River east of the boundary and covers an area of 9,500 square miles, forms a total of 11,340 square miles. Assuming about half this area to be covered by rivers, lakes and swamps, the balance, 5,670 square miles, or 3,628,000

acres, is forest, averaging 20 cords to the acre; this equals 72,256,000 cords of pulp wood, a conservative estimate. Of this, about 55 per cent. is estimated to be poplar, 25 per cent. divided amongst spruce, balsam and tamarac, and the remainder jack pine and white birch. The present growth indicates it to be the product of the last twenty years or thereabouts.



PULP MILL CONCESSIONS IN BRITISH COLUMBIA.

British Columbia's wonderful possibilities as a pulp producing province have been the subject of admiration for a long time past, and a few years ago it was fully expected that its actual production would by this time have reached an enormous total. But the era of production on a large scale was slower in arriving than enthusiasts calculated on; and some surprise has been expressed in some quarters at this slowness. In explanation, it may be stated, that the difficulties in the way of starting such a large and costly enterprise as that represented in the establishment of a pulp mill, particularly in an only very partially developed country of great distances, and where the needs of the industry were for a time by no means fully realized, were very considerable, especially in the face of restrictions which were placed in the way by the Government, though this was doubtless done with the best of intentions, and with a view to protecting the interests of the people.

The Provincial Government realizes now how large these initial difficulties confronting the launching of a large pulp mill enterprise necessarily are, and it has seen fit to do something to remove them. One way in which it is doing this is to lengthen the time in which pulp-wood area leases are to be taken up and operated, the old regulations not having afforded sufficient opportunity in which to make preparation to erect plants and get them into operation. As a guarantee of good faith, however, and to ensure that actual work will be performed, a deposit of \$50,000 is required from each company.

It is believed that the new regulations will smooth the way for some of the British Columbia companies, which have worked hard and spent considerable money in bringing their plans to the present advanced stage towards completion.



HUDSON'S BAY RAILWAY.

It seems to be definitely decided that the Hudson Bay Railway will soon be started, whether built by the Dominion Government or a private corporation. It will connect not only with Winnipeg, but directly with the commercial cities of Alberta and Saskatchewan, and it is now stated by an official connected with the survey that the line will find its ocean outlet to best advantage via Fort Nelson and not by way of Fort Churchill. About 71 miles in distance and three millions in money can be saved by making the terminus at Fort Nelson. Although this route may only be available to steamers four or five months in the year, yet that period will make its operations profitable as a cheap route for grain going out and manufactures going in between Western Canada and the Atlantic seaboard and Great Britain. A subject of interest also is the possible development of a pulp and paper industry founded on the supply of raw material and available

water-powers accessible in that region. There are considerable areas of timber suitable for pulp manufacturing in those regions, and no doubt industries will be established there in time, though it must be borne in mind that the further north pulp timber is found the slower the growth of the trees owing to the shorter summer. This again is modified by the degree of summer moisture, but the large areas that can be reached by river transportation as well as by the Hudson Bay Railway, will bring portions of the great north land into use for these industries and woodworking and lumbering.



QUEBEC'S MOVE.

In past years when politicians of Quebec have come to deal practically with the pulp and pulpwood problem they have always encountered the *bête noir* of the farmer and pulpwood shipper who was supposed to depend for his ready money on the few cords of wood he could ship each season to the United States. The votes of the farmer and local pulpwood operator were supposed to be all powerful and it was the boast of politicians interested in this element that no Provincial or Dominion Government would dare to deprive the French Canadian farmer and pulpwood dealer of this traffic no matter how much it injured the permanent resources of the Province by depleting the forests. We have always believed the French Canadian farmer had a broader patriotism than he was credited with, and that this bugaboo had only to be faced and it would be vanquished forever. Premier Gouin has faced it by proclaiming his determination to prohibit the export of wood from Crown Lands, and instead of facing a storm of protest from the rural constituencies his proclamation has received the all but unanimous approval of leaders of opinion both among the people and in the press. Evidence that

would make a material difference in the the soundest opinion of the Province is behind the premier has come from many sources. As an example the Montreal Board of Trade at its last meeting passed upon the question in the following resolution, which was unanimously adopted by the council:—

"Whereas the exportation of pulp wood from the Province of Quebec, which has reached enormous proportions, has resulted in great loss to the people of this Province, who are entitled to the industrial advantage which would result from the manufacture of such pulp wood into pulp and paper; and,

"Whereas it is highly desirable that immediate steps be taken to secure to the Province what would undoubtedly become one of its greatest industries, the manufacture of pulp and paper;

"Therefore, resolved that the council of the Montreal Board of Trade heartily endorses the policy enunciated by Sir Lomer Gouin, Premier of this Province, of prohibiting the exportation of pulp wood cut on the Crown Lands, and unpatented lands of this Province."



ATTITUDE TOWARDS UNITED STATES TARIFF.

Tariff discussion goes merrily on. If any change be discernible in the attitude of the public towards the new pulp and paper duties of the United States, it may be said to be in the direction of growing uncertainty and opposition in that country, and of a growing Canadian determination to stand firm for the conservation of our own resources. Opinion seems to have become crystallized that while our neighbors have a right to bring into force any fiscal policy that may please them, yet they have no right to interference with our doing the same thing, and if they mean anything in the shape of retaliation, that two can play at that game. As John Norris remarks in one of his recent bulletins, "To pro-

tect a combination of worn-out paper mills, some of which have been abandoned for news print making purposes, the United States Government has been forced into a tariff war with Canada, which promises to be far-reaching in its scope." While the attitude of Canadians towards the United States is absolutely friendly and neighborly, they naturally feel they have a right to resent any appearance of coercion. Moreover, a few weeks of reflection have served to show them that the Americans have more to lose in the end by a retaliation policy than they have themselves. If, as they have authority under the Payne Act to do, the United States customs authorities place an additional tax of 25 per cent. on all goods imported from Canada, it will doubtless work injury to Canadian interests. But the United States only imports \$90,000,000 worth of products from Canada, of which about \$33,000,000 worth at present go in free of duty, while this country buys \$167,000,000 worth from the United States, and Canada already has the power to place a surtax of 33 1-3 per cent. on goods coming from a country which discriminates against her. An extra tax of one-third the regular duties against imports of \$160,000,000 would hit hard. Not only this, but a very large proportion of the \$90,000,000 worth of products which we sell to the United States are raw materials which it would hurt that country considerably to have to pay more for. However, it is to be sincerely hoped that the talk of a tariff war between the two countries will prove to be talk only. But let Uncle Sam drop his bluff, or to a certainty it will be "called."

Both the paper makers and the publishers of the United States in their haste to obtain their own selfish ends seem to have over-shot the mark and to be in the case of the biter bitten. The publishers, even of those newspapers which have stood for protection on all other products, wanted free paper because that

cost of their chief raw material, and their arch-enemy, the paper manufacturers, would thus be sorely hurt. They did not get exactly what they asked for, but the secondary part of their desire was acceded to in a greatly enhanced price of the papermaker's raw material, pulp. Now they are crying out, asking the President to shut his eyes to the maximum features of the tariff as applied to countries, or "political divisions" of countries which do not do just as the Americans wish them. The paper makers suffered from the agitation started by publishers in that now Quebec refuses to be coerced and takes a firm stand in line with Ontario, and the demand throughout the Dominion for total prohibition of pulpwood export takes a long step forward. In a word the troubles of both publishers and paper manufacturers in the United States become accentuated, and Canada, though possibly hurt for a year or two, finds her position definably stronger, because the more strictly the United States shuts herself off from Canadian pulp and pulpwood the sooner will she find herself utterly dependent on the same. As an early result of this feeling, several important American paper mill removals to Canada are understood to be under way.

Our friends to the south may take it from us that there is not the slightest weakening in Ontario's attitude as a result of their threats. Quebec is equally plain-spoken. The talk of an export duty being placed by the latter province on pulp wood is, of course, beside the mark, for only the Federal Parliament has power to impose such, but that Quebec intends to fall into line with Ontario and to prohibit the export of unmanufactured timber from Crown Lands is perfectly clear from the repeated announcements by Premier Gouin. In New Brunswick also there is a strong and growing feeling in favor of taking similar steps.

That many far-sighted people in the United States regret the consequences

and possible consequences of their own tariff makers' harshness towards Canada is clear from the words of warning issued by such bodies as the Detroit Wholesalers' Association, besides editorial utterances of such papers as the "New York Journal of Commerce," "New York Journal" and others, which place the blame rightly where it belongs, on those who started the retaliatory controversy, namely, the authors of the new Tariff Act.

As the "Pulp and Paper Magazine" has said before, there is only one thing Canada can consistently do, that is to stand firm, to let things take their course, and look after her own interests without troubling herself too much over the affairs of her neighbor. In the meantime, the latter will find out where the shoe pinches and perhaps by then there will be no occasion for Canada to act at all.



OPENING OF HARMSWORTH PLANTS.

On the 8th and 9th instant, Grand Falls, Newfoundland, was en fete for the formal opening of the pulp and paper plant of the Anglo-Newfoundland Development Company, which has cost in the neighborhood of \$6,000,000. Hundreds of men will be employed in the mills here, while thousands of lumbermen will find work in the timber tracts in the vicinity of Millertown, owned by Lord Northcliffe and his associates. To house these men and their families comfortable and attractive dwellings have been built, churches, schools, and a library are under construction, a hotel has been erected, and a municipal water and sewerage system is in operation. It is understood that the pulp and paper produced here will all be used by Lord Northcliffe in furnishing paper stock for his many publications. Lord and Lady Northcliffe and many distinguished guests from England and Newfoundland were present at the celebration.

LIFE OF DRYER FELTS.

The life of dryer felts or the length of time which they will run upon a machine depends very much upon the care given them as well as the speed at which the machine runs, says a writer in "Paper Trade Journal." The seam of a felt, or where it has been sewn together in the first place, becomes weakened by constant friction and running on the drying cylinders, and this may be avoided by seeing that the seam is properly put in and well sewed with waxed thread before the felt is run. Next, after the seam is put in the felt, much care should be taken to run it with as little tension as possible, the slacker it can be run the longer it will last. A very important matter is the heat carried by the drying cylinders. It is not so much the speed at which these dryers run as it is the heat or steam pressure they carry that affects the life of the felt. Slow running machines usually carry low pressure of steam in dryers, consequently dryer felts on these machines run much longer time than do those on high speed machines, where the dryers carry high pressure of steam. Another factor affecting the life of the felt is found in the moisture in the paper, and which is conveyed to the felt by its contact with the paper. Water or moisture will injure the felt more than will heat, consequently some method must be used to overcome the effect of the moisture, and this is had by running a small drying cylinder for the purpose of keeping the felt dry. No paper is run on this cylinder, and the dryer felt should cover as much of it as possible, and this dryer should never be overheated; in fact, it is much better to have two or three of these dryers moderately heated rather than to have one overheated, thus subjecting the felt to intense heat while it is moist, which will shorten its life at least by 40 per cent. The dryers should never stand idle while the steam is on or when they are heated, for then only one part of the dryer felt, that part which is against the surface of

the dryers, is subject to this heat, and it weakens the felt very much. I have seen machine tenders go to work on Monday morning, and the first thing they would do on entering the machine-room would be to put a full head of steam in the dryers and then allow them to stand idle until they were ready to start the machine. It is also a practice to start the dryers as soon as the paper is off them. This is all wrong, and is due to lack of thought regarding the felts' welfare. If these things are properly attended to it is surprising how they will affect the life or running time of the felt, increasing it from 30 to 40 per cent.



BREAKING AT FIRST PRESS ROLL.

Discussing the causes which tend to bring about the breaking of the paper at the first press roll, a writer states that the breaking is generally caused by a sticking or a crushing of the paper, owing to the presence of over-moist patches. Such moist patches may be due to bulges in the wire, which cause a momentary loss of vacuum in the suction-boxes, or else to damaged places in couch-roll jacket. Crushing of the paper may also occur by the occasional escape of scum over the slices. All these faults are generally visible at the couch-roll. Although the paper may not actually break until it comes to the press rolls, the moist places would appear as dark patches after couching and before pressing. Crushing at the press roll takes place if the felt is clogged or spotty, or if the press roll itself be damaged. Sometimes it may happen that the box, situated under the press to catch the water pressed out of the paper, allows water to drip upon the felt, and the latter becomes wetter than it should be, in patches. Lastly, a similar trouble may be caused by drops of water falling from the roof of the machine-room. The better the stuff and the slower the speed of making, the less is the tendency to breaking at the press rolls.

PULP AND PAPER NEWS

The Canada Paper Company are selling four engines. Particulars will be found in their advertisement on page 3.

* * *

Good progress is being made on the rebuilding of the Peribonca Pulp Company's mill which was burned down last year.

* * *

The directors of the Shawinigan Water and Power Company have declared a dividend of 1 per cent. for the quarter ending 30th ult., payable on October 29th.

* * *

"The Montreal Witness" office was destroyed by fire last month, the damage being estimated at over \$60,000, covered by insurance. Large new presses had just been installed.

* * *

Bradshaws', Limited, capital \$50,000, has been incorporated to take over the business of J. D. Bradshaw & Company, Toronto, and to make and deal in wax papers and confectionery specialties.

* * *

The Colonial Wood Products & Supply Company, Thorold, are considering plans for a new company to put up a factory on the American side of the river as a branch of the one at Thorold.

* * *

The extension of the sulphur store of the Riordon mill at Merriton, is nearing completion. A large quantity of sulphur has been put in and the roofing is being pushed forward as rapidly as possible.

* * *

In order to save hauling, the E. B. Eddy Company has erected a steel conveyor made by the Jeffrey Manufacturing Company, Montreal, to distribute wood for 500 feet between its mill and factory.

W. L. Bowker, of the engineering firm of J. N. Wallace & Company, New York and London, has been on a visit to Dryden examining into the Gordon Pulp and Paper mill project in the interests of the English syndicate. It is understood that he was very favorably impressed.

* * *

The first meeting of the Commission on the Conservation of National Resources, recently appointed by the Government, will probably be held in Montreal about the 19th of the present month, in conjunction with a national forestry convention under Government auspices.

* * *

An interesting piece of news comes from Montreal to the effect that a considerable number of French Canadians left that city recently for British Columbia, where they will take the places of Asiatics in the Fraser River Lumber Company's mills. Other western saw-mills are adopting a similar course.

* * *

The Laurentide Paper Company have elected officers as follows:—Charles F. Smith, R. B. Angus, C. R. Hosmer, Edward Hanson and George Chahoon, Jr. Sir Wm. Van Horne was re-elected president, George Chahoon vice-president, and Charles F. Smith chairman of the executive committee.

* * *

Hon. W. T. Pipes, Attorney-General for Nova Scotia, died in Boston of apoplexy on the 7th inst. Mr. Pipes took a keen interest in forestry questions, particularly in regard to the re-foresting of the barren lands of Nova Scotia. He presided over the recent meeting of the Canadian Forestry Association in Regina.

The Dominion Department of Trade and Commerce is establishing an export bureau, and it is calling upon all manufacturers, exporters, and producers throughout the Dominion to send in a list of articles in which they are interested. This will be carefully indexed and sent to trade agents throughout the world.

* * *

A. B. Macdonald, jr., of the Kansas City Star, one of the largest papers in the Western States, has been on a visit to New Brunswick and Nova Scotia buying pulp-wood. That paper possesses its own paper mill and makes all its own paper. Formerly it bought all its wood in Wisconsin, but Mr. Macdonald believes it will be profitable to buy it in future in Canada.

* * *

The New Land, Lumber and Pulp Company which possesses large timber areas in the valley of the Exploits River, Newfoundland, where the Harmsworth and Albert Reed properties are located and which will in future go under the name of the Central Forests Company, Limited, is about to enter the pulpwood field on an extensive scale. Heretofore its operations have been confined largely to the cutting of lumber, but it has made arrangements to supply large quantities of pulp wood to the Bishop's Falls plant. A plan is also under consideration for the establishment some time in the future of a sulphite mill making use of the 2,000 or more horse-power that can be developed on Little Rattling Brook near Norris Arm. The spruce on the property is described as very good. It is hoped this year to produce about 2,000 cords of pulp wood, which quantity could be largely increased as time goes on.

* * *

"The Fort Frances Times," of September 30th, contained the following

paragraph. "The report in the 'Times' last week that Graham & Horne had sold their mills and limits at Mine Centre to the Northern Construction Company has been confirmed, and the deal is now an accomplished fact. The consideration is said to be over \$200,000, which represents a nice clean up of over \$100,000 for Graham and Horne. With the right to cut the timber, is the obligation to erect a pulp and paper mill, and it is yet to be seen how far this agreement will be carried out. It is a well-known fact that there is no pulp wood to warrant the building of such a mill, and it is very unlikely that the Northern Construction Company will feel like investing so much money in any such scheme unless the Government can provide the pulpwood. This they are in duty bound to do, and if so, it should be manufactured at Fort Frances.

* * *

F. N. Burt Company, Limited, is the name of a corporation which has just been organized in Toronto with a capital of \$1,500,000 to manufacture and deal in all kinds of sales books, cheque books, blank and pass books, woodenware and paperware, and stationery of all kinds. It has acquired the business of F. N. Burt Co., of Buffalo, manufacturers of small paper boxes, the Morton Company, Limited, and Merchants' Counter Check Book Company, Limited, of Toronto, also the Canadian business of Carter-Crume Company, Limited. It proposes to establish a Canadian factory, in which will be consolidated the plants of the three Check Book Companies, while duplicates will be installed of such special machinery now used by the F. N. Burt Company in its Buffalo factories as will be suitable to the growing Canadian market. It is expected that a business of not less than \$250,000 will be done by the Canadian factory within two years from its commencement. Among those interested are Robert Kilgour and Jas. Ryrie, of Toronto.

The American Finance and Securities Company, of New York, has purchased from the Canadian Pacific Railway 54,000 acres of timber lands on Cowichan Lake, Vancouver, B.C., for approximately \$1,500,000. This is said to be the finest tract of timber remaining in British Columbia. The timber, which consists largely of fir, is of an unusually dense growth, averaging, it is said, more than 90,000 feet to the acre. It is stipulated in the contract that the purchasers are immediately to erect a mill with an annual capacity of at least 100,000,000 feet, and that the railroad is to build a branch line from Cowichan harbor into the timber. The Canadian Pacific timber holdings in Vancouver are all Crown grant lands, and it has always been the road's policy to sell its timber only where the purchaser will agree to operate the properties and guarantee a certain amount of traffic over the line. Aside from the purchase price, the company are going to spend as soon as possible \$1,000,000 on development." Besides erecting the sawmill the company is prepared, it is stated, to spend an additional \$500,000 on a pulp mill.



MONTREAL HAPPENINGS.

(Special to "Pulp and Paper Magazine.")

Montreal, October 9th.

An important change in the personnel of the managerial staff of the Canada Paper Company took place recently in the resignation of the local manager, Mr. William Cauldwell. Mr. Cauldwell has occupied his present position for the past seven years and leaves the Canada Paper Company for the purpose of entering into business on his own account. It is understood that he is associating with himself a number of financial interests well known in Eastern Canada, and that a company to be known as the

William Cauldwell Paper Company will be organized.

Up to the present there has been no permanent appointment made by the Canada Paper Company to fill the position vacated by Mr. Cauldwell. In the meantime, the manager of the Toronto office, Mr. H. B. Donovan, spends the major portion of each week in Montreal in the interests of the company, the week-ends being spent in Toronto. Being spoken to respecting the progress of the company, Mr. Donovan reported that an excellent business was being done, and that the outlook for the future was in every way encouraging. As to the situation at Windsor Mills, he said that the re-construction of the old mills and the construction of the new mills was almost completed and that the work was proceeding smoothly throughout. New plant would be installed as quickly as possible, thus increasing the output of the company and placing it in a greatly improved position to attend to the requirements of the trade.

St. Raymond Paper Company.

The progress of the St. Raymond Paper Company, in liquidation, is being watched with considerable interest by the entire paper trade of Montreal. There can be no longer any doubt that the company has paid off its bond issue, in full, the amount of the issue being \$200,000, and that it has also settled the claims of its preferred creditors, the amount of such claims having been, it is stated, somewhat in the neighbourhood of \$270,000.

Judging by these facts, as well as from the generally accepted statement that operations will shortly begin again at the pulp mill, and interpreting this in the light of the statement made by the management at the time of the liquidation, it is evident that the assets of the company have been purchased by strong interests and that the suggestions, made at the time, as to the requisite improve-

ments, are apt to be carried out. However, the situation up at the pulp mills is in every way favorable at present, there being an abundance of water at present and this abundance having been experienced throughout the whole of the present year. It is expected, however, that dependence will not be placed upon the continuance of such fortunate conditions, but that such improvements or alterations as are necessary to ensure the uninterrupted operation of the plant throughout the entire year will be made as quickly as possible. Meantime, it is expected that the pulp mill will be in operation again in the course of a few weeks.

Imperial Paper Company.

According to a report which is current among local paper mill interests, there is a possibility of the Imperial Paper Mills, of Sturgeon Falls, Ontario, being taken over by American paper interests. The Chicago Newspaper Company is said to have been examining the plant with the idea of purchasing it and that in addition to this a Michigan firm is desirous of making a deal. One might almost say of this that "coming events cast their shadows before," the application of which old adage becomes more apparent when the gradual decrease in the pulp wood of the United States and the alteration in the policies of the different provincial governments of Canada, is taken into consideration. t

A Bad Fire.

Quite a serious fire took place here on September 18th, the entire stock and most of the plant of the Canada Paper Box Company having been destroyed. Illustrating the conditions of trade, it is interesting to note that at the time the fire took place the entire staff was at work although it was Saturday afternoon, the multiplicity of orders having made it necessary to work overtime. The president of the Company, Mr. Arthur Harris, informs the "Pulp and Paper Magazine" that although a full investigation has been held it has been impos-

sible to trace the origin of the fire or fix the responsibility. The stock on hand was valued at nearly \$5,000, fully covered by insurance. This was totally destroyed. The insurance companies allowed about three-quarters of the value of the plant, or a sum of about \$5,000, the plant being accepted back by the factory as it was of more value to it than to anyone else. The old premises having been destroyed, Mr. Harris purchased a property at 23 and 25 Cote Street, and within four days was turning out paper-boxes again. He was fortunate in being able to purchase from another company which was giving up that particular branch of its business, a portion of the necessary plant and the remainder is coming on from the United States. The new premises are five stories in height, and floor room of 5,000 feet is afforded in each floor, so that, with the most modern machinery, which will be installed, the company will shortly find itself in a better position than previously to attend to the requirements of its customers.

Mr. Rolland's Views.

Hon. J. D. Rolland, of the firm of Rolland Paper Company, of St. Jerome and St. Adele, made some interesting statements recently respecting the effect of the proposed prohibition of pulp wood cut from the Crown Lands of the Province of Quebec. He said that because of this, Quebec workmen who formerly obtained but \$6 per ton on each ton of paper made from Quebec wood, would obtain something like \$40 per ton. He was confident that the action of the Government along the lines proposed would lead to the establishment in the Province of Quebec of factories for the manufacture of the pulp-wood into pulp and paper, so that, eventually, the entire process of manufacture would take place within Canada instead of taking place, as at present, in the United States. It was this additional work, which would take place in the Province instead of in the United States, which would give

added employment to Canadian workmen. Mr. Rolland referred to the decision of the Canadian Manufacturers' Association to approach Sir Wilfrid Laurier in order to obtain, if possible, Federal Legislation upon the subject. He referred to Shawinigan and Grand Mere as instances of the benefits to be derived at many points throughout the Province by the pulp and paper industries which the new policy would cause to spring up. He also said that he knew that Americans were purchasing pulp mills in New Brunswick and operating them.

New Brunswick's Course.

Apparently, the Province of New Brunswick is about to follow the lead of the Province of Quebec and Ontario, in the matter of legislating in favor of restricting exports of pulp wood. Premier Hazen, in a speech delivered at the Sackville Exhibition this week, intimated that restriction will be placed on pulpwood cut on Crown Lands, and he added:—"I hope that the Dominion Government will so far co-operate with the Provincial Governments that our forest wealth now being ruthlessly destroyed by United States paper makers may be preserved for the benefit of our own people. We have gone on with the idea that our forests are inexhaustible, that the annual growth is equal, at least, to the yearly cut. I am sorry to say that this is not the case, as it has been ascertained for a certainty that every year, in the Province of New Brunswick, more timber is being cut than is being replaced by natural growth. If this is continued, it is only a question of a few years till our forests will be gone. The principal source of the destruction of the forests is the export of pulp wood. The time has arrived when the Province should adopt a policy that will have the effect of causing the raw material of our forests to be manufactured by our own people and in our own Province. It is now time to put a stop to the export of

pulp wood from the Crown Lands, at least. I believe the Government of New Brunswick would be acting in sympathy with public sentiment if it placed a restrictive export duty on all pulp wood and raw material cut on Crown Lands."

New Mill at La Tuque.

Although the prohibition of the export of pulpwood from the Crown Lands of the Province of Quebec has not yet been put into force, the very announcement that it must take place before next September, is influencing Americans, whom it will affect, to take action in advance to secure their interests. It has just been stated that plans are being made by Americans to establish new mills at La Tuque, at a total outlay in the vicinity, some say, of \$2,000,000. Some three years ago, the back water rights on the St. Maurice River at La Tuque were disposed of by the Quebec Government to Brown Bros., of Berlin, N.H., and Portland, Me. This firm controls the Berlin Mills Company and the Burgess Sulphite Company. A new company was formed under the name of the Quebec and St. Maurice Industrial Company. This company purchased considerable limits on the St. Maurice from the Quebec and Lake St. John Railway and other interests, the understanding at the time being that a large pulp and paper mill was to be immediately erected at a cost of \$2,000,000, an addition to the outlay on power development. Up to the present, nothing has been done, although it was understood that this undertaking was to be carried out immediately. Following on the Gouin announcement, however, have been conferences between the interests mentioned and the authorities at Quebec, and it is said that extensive purchases of material are now being made to carry out the undertaking at as early a moment as possible in order that full advantage may be taken of any restrictive measures enforced by the Provincial Government.

THE PULP AND PAPER TARIFF.

Editor, "Pulp and Paper Magazine."

Your article in last issue headed "The United States Pulp and Paper Tariff" is a good one but there are two errors in this article which should be corrected in your next issue. On page 245, second paragraph, you state "these provisions are enforced only against paper made from wood cut off Crown Lands," whereas the provisions referred to are enforced against all paper and pulp exported from any province or country imposing any export duty or discriminating against the American export. Again, in paragraph 4, you state that the duty imposed on mechanical or ground wood pulp from Quebec is \$2.02 per ton, whereas the duty actually collected is \$1.67 per ton plus 25c., in other words, \$1.92 per ton.

Meantime, if I may be allowed to say so, you are doing good work in urging immediate action by the Federal authorities. It is urgently necessary for us to conserve the supplies of our own raw material for our manufacturers and incidentally if possible to secure fair reciprocity with the United States, on all pulp exported as well as all paper composed of say 50 per cent. wood and upwards. If we cannot secure this fair reciprocity, then we should in any case conserve our own resources and stand alone—we can well afford to do so.

Yours respectfully, John Forman.

In reference to the above we may appropriately quote the following, taken from the instructions given by Jas. B. Reynolds, acting secretary of the United States Treasury, to the Collector of Customs at Ogdensburg, N.Y.:—

"Mechanically ground wood pulp produced from pulp wood cut on Crown Lands in the Province of Quebec should be assessed with the regular duty of one-twelfth of 1 cent per pound under paragraph 406, and the countervailing duty of 25 cents per cord, the equivalent of a cord of pulp wood being the short ton of 2,000 pounds."

HEATED STOCK.

Heating stock when it is in a liquid state has a very injurious effect upon the finished paper, and should be avoided whenever possible. It destroys the felting power of the fibres by dehydrating them, so that they will not felt together in their passage over the machine wire. It consequently deteriorates the sizing of the sheet and also the color. The heated stock will also cause any loose dirt or slime which may have gathered in the pipes or boxes to come forward. Paper made from stock which has been severely heated upon the machine usually feels soft and "punky," and it will not take a good finish. Everything is against the practice of heating the stock, and nothing is in its favor. The machineman does it to overcome his trouble in getting production on slow or wet stock, and cannot be held responsible should the superintendent of the mill insist on a large production. The heat also has the effect of making the stuff spread upon the wire, thus overcoming much work and worry by the machine man in getting such an effect without the use of it. However, where a good-quality paper is wanted the use of heated stuff must be avoided, and this can be done by slowing the machine back to a speed where it is possible to remove the water from the stock on the wire.



Fine exhibits were made by J. R. Booth and the E. B. Eddy Company at the Central Canada Exhibition, Ottawa. Mr. Booth showed the largest rolls of paper ever made in Canada, each 12 feet long and weighing 2,350 pounds. The E. B. Eddy Company demonstrated the process of manufacturing sulphite with a view to interesting builders in the suitability of the material for sheathing houses inside or outside. The sulphite card weighs a pound to the square yard, and sells at 3½ cents a pound.

RAG AND PAPER STOCK MARKET.

The rag and paper stock market showed practically no change this month. The demand from the United States continues about steady, the mills being fairly well employed, apparently. It would seem that the pulp and paper trade is somewhat slower, in some respects, to respond to general market conditions, the trade not having felt the effects of the depression which began in 1907 until some time after it began. The rag and paper stock men, consequently, are rather of the opinion that they should feel the benefit of the reported improvement in general trade conditions in a more marked manner ere very long. Meantime it would seem that the situation, while quite satisfactory, is not so strong as it is reported to be in a number of other lines of business. Supplies are quite sufficient to amply provide for all requirements, and the tone of the market consequently shows very little alteration from that described during the past month or so.

Quotations are repeated, as follows:—

Shirt Cuttings—	Per 100 lbs.
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50

Shoe Rag Cuttings—	
Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00

Overall Cuttings—	
Blue	3 25 to 3 50
Brown	2 00 to 2 50

Paper Shavings—	
Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 25 to 0 35

Roofing Stock—	
No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50

Sundries—	
Old bagging	0 60 to 0 65

Manilla rope	2 00 to 2 25
Mixed cotton rags ...	1 00 to 1 25

(Continued on Page 50.)



**RIORDON PAPER COMPANY,
LIMITED.**

The merger of the Riordon Paper Mills, Limited, Montreal, with G. H. Perley & Company, Ottawa, which has already been announced in these columns as being under way is now officially announced as follows:—

The Riordon Paper Mills, Limited, of Montreal, owning timber limits in Quebec and pulp and paper mills at Hawkesbury, Ontario, and Merritton, Ont., and G. H. Perley & Company, of Ottawa, owning limits and sawmills in Quebec, have combined their properties. The capital will be about \$3,500,000 and the new company will own about twelve hundred (1,200) square miles of pulpwood country on the Rouge River in Quebec. The new firm will be called "The Riordon Paper Company, Limited," and will produce newspaper and building paper, sulphite pulp, spruce and hardwood lumber, and clapboards. Considerable developments will be undertaken in the near future.



—J. W. Rickey, chief engineer of the St. Lawrence Power Company recently gave some particulars of the Long Sault power scheme, which is to be undertaken by that concern on the Canadian side in conjunction with the Long Sault Development Company on the American side. The St. Lawrence Power Company now owns the water power at Mille Roches. The first work will be to build an enormous power-house and lock at the foot of the South Sault channel, and a development of over 65,000 horse-power is expected. At the foot of Barnhart's Island in Canada will be erected a large power-house, from which it is contemplated to furnish enough power for all present and future demands in eastern Ontario.

MOORE AND WHITE FOUR-DRUM WINDER.

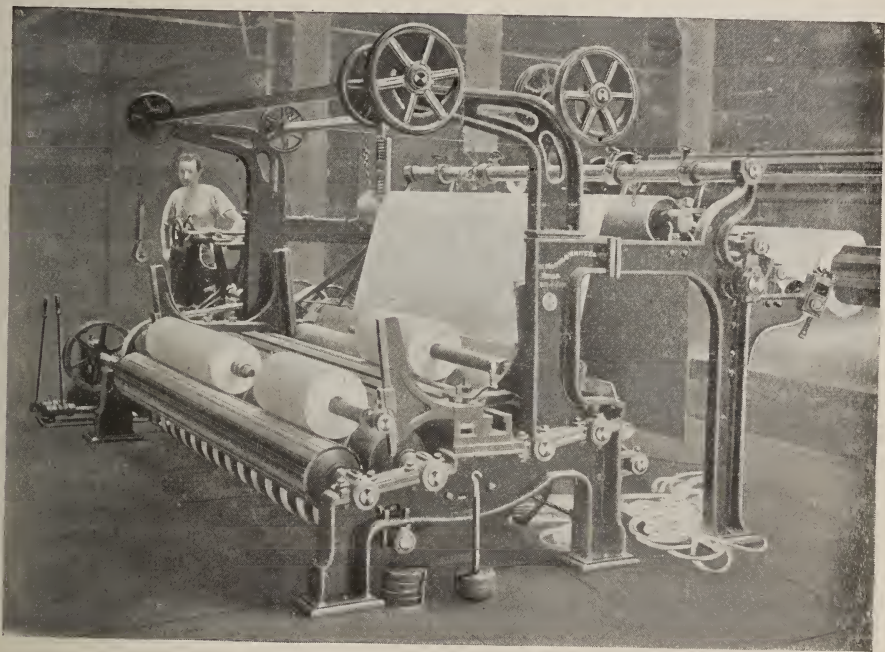
This winder is being used for winding all grades and kinds of paper. Very severe tests have been made, but all have exceeded expectations.

Each roll is wound on an independent shaft, thus allowing rolls of unequal diameters to be made. If a break occurs, paper on the other rolls is not affected; this means less number of rolls to be pieced.

the winder attached to our standard slitter part which takes up less room than any other slitter and has several very good features. It can be used as a rewinder by attaching a back stand to carry the roll which is to be rewound.

Paper is fed from the slitters automatically,—thus one man can operate the machine. It will be also noticed from the photograph the convenient way the slitters may be removed without handling the shaft.

The width of the drums of the winder



A special mechanism is used overhead for decreasing the amount of pressure on the drums, this arrangement is used only when paper on reel is found to have soft ends. This device will make a roll without wrinkles and will wind a roll hard.

Paper is wound on shells or cores of any description. Plugged rolls are wound on collapsible shafts.

The finished rolls may be rolled off the winder on a truck thus eliminating the necessity of lifting the rolls.

The winder is supplied separate from the slitter part. The photograph shows

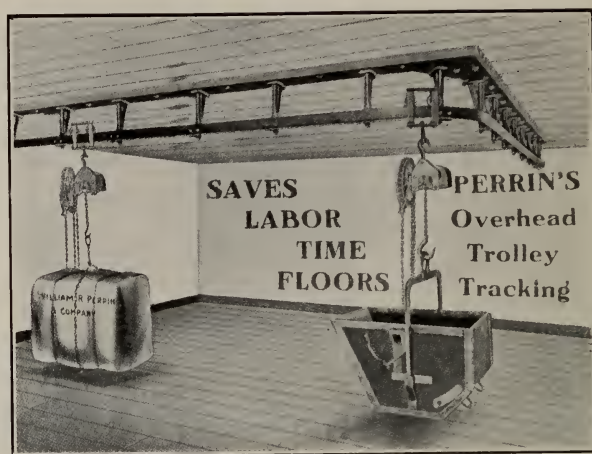
should be the same as the width of the wire or cylinder moulds on the paper machine.

The machine will pay for itself in a short time, and the makers guarantee that less paper will be wasted with it than any other machine on the market. They will place one of these machines for 30 days' trial, subject to approval. Several of the leading paper makers of the United States are equipping all their machines with "M. & W." winders.

Moore and White, Philadelphia, will be pleased to furnish full particulars.

The accompanying cut illustrates the form of overhead trolley tracking made by William R. Perrin & Company Ltd.,

of the older edge runners, but it turns out from 50 to 100 per cent. more pulp per day than a pug mill. The average



Toronto. The advantage of these time and labor saving appliances is becoming rapidly more appreciated.



PUG MILL OR PULPING MACHINE.

Working up old waste paper, spoil stuff from the wires, etc., is a frequent operation in a paper mill, and it is an important and very difficult problem in many cases to decide whether it is to be disintegrated in a pug mill or in a pulping machine—e.g., that of Dietrich or Wurst. When the pulping or kneading machine, which is of course, a much more modern product than the pug mill, first came to the front the makers of pug mills soon found out several improvements that could be made in that type of machine.

The older types of pug mill were very wasteful of power, and by no means very durable; but in some cases a pulping or kneading machine is better than the most improved type of pug mill. This is almost invariably true when the pulping has in view the manufacture of packing paper, especially on a large scale. It is true that the pulping machine takes more paper than the newer types of pug mill, although it requires less than many

power wanted for a pug mill for grinding waste is from 8 to 12 h.p., according to the local conditions. The output per hour of pulp (weighed dry) also varies considerably, and depends on the construction of the mill and the size of the stones, as well as upon their composition. They are usually made of granite, lava, or sandstone. The output of a pug mill can be greatly increased by boiling the waste in water before it goes to the mill and by occasionally adding hot water to the stuff in the pan; but at the same time the resultant pulp from white paper turns out greyish, and the new paper made from it is deficient in handle. Hence the boiling is rarely resorted to if the manufacture of white paper is in view, but it should always be adopted for making packing-papers where the color is immaterial. The action of the mill must be carefully watched to see that the stuff is not over-ground. Many a batch has been spoiled by leaving the mill at work during a meal-hour, by the fibre being broken up too short. This danger does not occur with a pulping machine, for the pulp is delivered as it is finished, and is not left to be removed by the attendant. Again, the pulping machines do not mix

up foreign bodies with the pulp as pug mills do. The edge runners crush bits of gypsum, etc., and mix them with the pulp, but in the kneading machine they fall to the bottom of the trough out of the way. A pulp strainer is an essential accessory to a pug mill, as these foreign lumps spoil wires and felts and make holes in the finished paper.

At the same time the pug mill is to be preferred in making fine papers, just as the kneading machine ought to have the preference when the pulp turned out is required for coarse papers. This is the nearest approach to a rule that can be given.

In conclusion it may be stated that the kneading machine is on the whole the best for making printings, an intermediate sort of paper, but even here the pug mill should be preferred for the better qualities.

—Zentralblatt für die Gestein-Papier



CANADIAN PRINTING PAPER IN SOUTH AFRICA.

A most gratifying increase each year for the last three has been experienced in regard to printing paper, says the Canadian Trade Agent. The Canadian Trade Agent in Natal states that a short time ago a circular was sent to all the printing companies within the district, and up to the present replies have been received from most of the important ones. In looking over these it is seen that in Natal all the daily newspapers are using Canadian paper, amongst the others some are using it, one is testing it, one has just placed an order, and the balance appear to be totally ignorant of it, and would like to hear something of it, or would not care to change from their present suppliers unless it could be shown to be to their advantage. One firm complained that they found the samples and quotations attractive, but

could not obtain an assurance of a steady supply. The works manager of one large and important daily states "the quantity of mechanical wood introduced into the Canadian papers does not give sufficient direct strain in the weight of the paper we are printing our news upon. In addition to this, the fluff and grit that usually appear on the surface of Canadian newspapers is also detrimental to the process under which we work. The mechanical wood pulp paper has also objectionable points in the color being of a very low grade, etc." The proprietor of a newspaper complained, when in Pretoria last month, that Canadian paper was too brittle for the heavy strain under which it was placed by his machines; he said that this fault had cost him an immense amount of trouble and inconvenience, and also loss. He also complained of the packing of Canadian paper, comparing it most unfavorably with the Swedish method; however, as to the latter point, his is the only objection heard.

Perhaps it would be advisable to give his remarks, for the information of exporters. He said that Canadian paper was too brittle, had no fibre, was inclined to tear straight across, and that much of it came simply wrapped up in sulphite, with a strip of canvas bent around each end: and at each end there was only a wooden plug inserted for about three inches. Whereas, he stated, the Swedish article came securely wrapped in sulphite inclosed in wooden slats, which was held together by a wooden place at top and bottom, and also that a wooden core was passed completely through the reel, in this there was a groove to hold a thin iron bar passing through the entire core and also the wooden plates at the ends, and being bolted to the latter it made the whole package rigid. This gentleman gave this information with the idea of assisting, and it is to be gathered that he would much prefer Canadian to foreign paper.

The accompanying engraving shows a paper mill in Scandinavia. A Canadian paper manufacturer calls our attention to this as illustrating the scarcity of pulpwood in Norway and Sweden compared with Canada. The logs shown here are well in the foreground, and they are of a size which no Canadian mill would think of using, although some United States

a "wild" appearance. It was as if a sheet of paper were made on a hand mold without shaking to distribute the fibres over the raised wires of the watermark. Attempts were made to fix a dandy-roll against the wet web of paper on the felt after couching failed, because pieces of the paper always tore off and stuck to the



mills use sticks as small as these. The plain inference is that spruce and other pulpwoods are getting scarcer in Scandinavia than outsiders would suppose, and possibly the limit of economical production there has already been reached.



WATER-MARKING CYLINDER MADE PAPERS.

A correspondent describes his experiences in trying to obtain clear water-marks on papers made on the cylinder machine. He was not satisfied with the results obtained by the usual method of stitching letters on the wire of the making cylinder itself. It is true that the designs were legible, but the cleanness of the lettering left much to be desired. This was due to the fact that more pulp collected in the spaces between the raised wires of the design than on the design itself, and the water-mark had

dandy-roll. Finally, after several alterations, complete success was achieved by fixing a dandy-roll against the stuff on the marking cylinder itself, between the level of the liquid in the vat and the couch-roll. The dandy-roll must run on very well-balanced bearings, and it must not be very large in diameter, because the space available is very small. The line of contact between the dandy-roll and the paper making cylinder should be adjustable, and must be chosen according to the freedom of the stuff, the object being to effect contact at the place where the stuff is drained to the same extent as it would be on a Fourdrinier machine. The level of the pulp in the vat has to be kept as low as possible and the couch felt has to be carried clear of the dandy-roll and brought down sloping at an angle to the couch-roll, the object being to make as much room as possible for the dandy. The taking-off of the paper by the couch felt is effected in the ordinary way.

CHROME YELLOW FOR DYEING PAPER PULP.

The "Papierfabrikant" in an article by Leopold Skark on dyeing with chrome yellow produced in the pulp, says that this extremely fast, brilliant yellow coloring matter consists of chromate of lead precipitated by adding sugar of lead (acetate of lead) to the pulp in the engine and subsequently chromate, or more generally bichromate of potash. These two chemicals combine instantly, but the shade of color produced varies very largely according to the proportions used and the conditions under which the mixture is effected.

The theoretical proportions for complete precipitation are $2\frac{1}{2}$ parts of sugar of lead and 1 part of bichromate, both salts being dissolved separately in water and the lead solution being added first. If sulphates, e.g., sulphate of alumina, are already present in the pulp they will combine with a corresponding portion of the sugar of lead. There will thus be formed a white precipitate, sulphate of lead, which will cause the shade of chrome yellow subsequently produced to be paler and will give lemon yellow shades. In this case, a smaller quantity of bichromate will be required to combine with the sugar of lead remaining in the engine. A similar modification of the shade may also be produced by substituting sulphate of soda (Glauber's salt) for a portion of the bichromate in the second solution; for every two parts of Glauber's salt used, one part of bichromate of potash should be omitted.

This seems, however, an expensive method of obtaining pale shades since other white mineral pigments are available at a lower price than sulphate of lead.

In view of the action of sulphates on the shade of the color, the pulp should be dyed before sizing; once, however, the color has been produced, sulphate of alumina has no influence on its shade unless an excess of sugar of lead has

been used. The temperature of the pulp in which the chromate is precipitated also has an influence on the shade; if the pulp is warm the chrome yellow produced has a shade approximating to orange. Mr. Skark attributes this difference in shade to the fact that at high temperatures the precipitate assumes a denser and more compact form which consequently has a darker shade. Other circumstances which tend to darken the shade are the use of an excess of lead salt over the quantity of bichromate employed; also the use of hard chalky waters. The darkening thus produced may be attributed to the formation of a basic acetate of lead which gives a basic chromate of lead when the bichromate is added. This circumstance is capable of being utilized for dyeing pulp with chrome red or chrome orange. For this purpose the ordinary chrome yellow is treated with caustic soda or milk of lime in quantity sufficient to give the degree of reddening of the shade which is desired. The quantity of alkali required to produce a given shade of orange or red may be reduced by heating the pulp, since heat alone tends to redden the shade. Alum or any acid substance will destroy the red shade by neutralizing the basic nature of the precipitate to which it is due, and ordinary chrome yellow will be reproduced. Consequently chrome yellow or red cannot be used for sized papers.

Unlike iron-buff, chrome yellow requires no time for its development; the full color is produced immediately the two chemicals are mixed. It is easy, therefore, to increase the color by adding these chemicals to the pulp in the chest. On the other hand, the "checking" of an over-dyed pulp by the introduction of white pulp cannot be done satisfactorily, because the white fibres will always remain visible in the paper among the yellow; this is not so bad with thick papers as with thin ones.

Another point which complicates the dyeing of pulp with chrome yellow is its

liability to darken in shade on standing. It is not advisable therefore to empty the beaters successively into one chest, since the freshly dyed stuff will always be diluting the older stuff, so that the latter will not be used up before its color has changed. Arrangements must therefore be made for the steady consumption of the stuff in the same rotation as it was prepared.

Chrome yellow can be bought ready made in the form of a paste, but the dyeing of the fibres is not so good as when the chromate is precipitated in the pulp; there is also a large loss of color in the backwater, which does not occur with the precipitated coloring matter. Commercial chrome yellow, however, has the advantage that an adjustment of the shade by admitting white pulp to the chest can be done without fear of unevenness.

Mr. Skark describes the methods to be followed for the analytical estimation of the quantity of chrome yellow in a paper—the analysis comprises determinations of the lead oxide, lead chromate and lead sulphate. He also describes a simple test for detecting whether chrome yellow has been used for coloring a paper. Chrome yellow is immediately bleached by dipping the paper in caustic soda or in hydrochloric acid. If a drop of caustic soda be placed on the paper so as to destroy the chrome yellow, and if a drop of a solution of silver nitrate and nitric acid be placed at the side of the first drop, a bright red streak of silver chromate will be produced at the line where the two drops blend.



HOW KRAFT IS MADE IN GERMANY

By Dr. Arthur Klein, trans. by Paper Trade Journal.

Soda cellulose wrapping papers were in the '80s and the '90s more and more replaced by sulphite cellulose papers, which took an attractive white shade, or

when dyed with aniline colors came up in clear and brilliant tints.

A change has taken place of late years, since certain Scandinavian factories have succeeded in producing from soda cellulose wrapping paper equal to the best rag papers in strength and suppleness while far excelling those made from sulphite pulp. Although introduced as Swedish Kraft papers, these grades have likewise been produced in other countries, including Germany.

The wood used is that of coniferous trees, that of leaf bearing trees being too soft and deficient in strength. The wood, reduced to small pieces, is directly or indirectly boiled in horizontal or upright boilers. The washing out of the cellulose and the recovery of the lyes are effected by means of diffusers and vacuum evaporators, as well as by mechanical furnaces, in a quick and rational manner. The newer soda process factories, with thirty to forty workmen and helpers, can attain an output of 15 tons in twenty-four hours, recovering 85 to 90 per cent. of the soda salts used.

For boiling Kraft pulp lyes are used of 8° to 15° Bé. in strength. The weaker the lye the longer does the boiling take, and the more fuel is required for the process of recovery. The strength of the lye should be calculated in accordance with the various woods used and the method of boiling.

The composition of the lyes differs according to whether the equipment is operated by the sulphate or the sulphate soda process.

If the salts of soda lost during the process of manufacture are only replaced by sulphate and bi-sulphate (by the pure sulphate process) the compositions which serve for the preparation of the lyes contain 20 to 25 per cent. of sulphide of sodium, the remainder consisting of caustic and other compounds of sodium. In the mixed processes, where only part of the losses is replaced by Glauber's salt, and the remainder by ammonia soda, the proportion of sulphide of sodium is less (6 to 10 per cent.), but the percentage of sulphites is often

higher, while that of caustic alkali is always so. The first named process is the cheaper, while in the second the unpleasant odors arising from combinations of sulphur are less noticeable.

A characteristic feature of the preparation of lyes in all Kraft pulp factories is, however, that they consist of a mixture of the fresh lyes obtained by causticizing the recovered salts and of lyes already used for boiling. They thereby acquire a dark brown color, which produces the brown tint approved in Kraft pulp and papers. The strength of the fibres in the finished product is promoted by the lyes used in boiling, being strong enough to dissolve the ligneous substances without weakening the fibres of the cellstuff.

The process in boiling Kraft pulp is in brief as follows: The wood reduced to small pieces is filled into the boiler, the necessary quantity of fresh (or "white") lye, as defined by experiment and of a given strength, being introduced from a receiver. There is subsequently added 50 to 75 per cent. of lye already used for boiling ("brown lye"), the needful pressure in the boiler being then attained as quickly as possible. The pressure usually varies between 95 and 135 pounds to the square inch, depending upon the strength of the lye. The duration of the pressure is from one to three hours, being in an inverse ratio to its force. It has, however, been found suitable to use lyes as weak as possible, under a pressure of 80 to 110 pounds per square inch, lasting for a period of an hour and a half. When the boiling with the lye is ended the pressure should be removed as soon as possible, the contents of the boiler being washed at the highest temperature practicable.

In the further treatment of the Kraft pulp chief attention should be paid to letting the fibres come on to the machine as little shortened as possible, while, however, being frequently split in their longitudinal direction. Before further working in the hollander the cellulose should be loosened by treatment in kneading machines and similar appli-

ances. The manufacture of Kraft paper closely resembles that of better class "Normal" papers and similar grades. As the paper should possess a high degree of breaking strength insufficient grinding and moistening, as well as too quick drying, should be avoided. The oscillating and wire portions of the paper machine should, among other parts, receive careful attention in order that the extension of the paper may be of a satisfactory character, averaging not less than 3 per cent.

Kraft papers are ordered with machine finish, and smooth on one or both sides. One sided finish is somewhat more difficult to obtain than with sulphite papers, but a high degree of brilliancy has nevertheless been found practicable.

The principal outlets for Kraft paper have been the English and Colonial markets, the North of Europe and the United States. After referring to the advertisement imported Kraft papers have received through the efforts of American manufacturers to limit their importation and to benefit the European article indirectly derived from that circumstance, Dr. Klein says in conclusion:

It is, however, regrettably much to be feared that, owing to the production of these papers, which now exceeds their consumption, and to which new factories have of late been continually devoting themselves, the once justified hopes of this new branch of the paper industry will be sorely disappointed.



CAUSTICIZING RECOVERED SODA ASH.

At the annual meeting of the Verein der Zellstoff und Papier Chemiker, Willi Schacht gave a lecture on the causticizing of recovered ash. In spite of its apparent simplicity, the process causticizing these somewhat impure ashes in the most economical manner is really a complicated operation. If any of the necessary conditions be departed from.

the economy of the process may be seriously diminished.

It is, of course, generally known that if the specific gravity of the crude ash solution exceed 1.12, i. e., 24° Tw., the causticization is incomplete, and the process consequently uneconomical, because any residual uncausticized sodium carbonate or silicate is practically useless for the fibre boiling.

The second main point in determining economy is that the chalk mud produced by causticizing should settle readily and to a small bulk, so that the major portion of the caustic liquor may be drawn off clear without the necessity of filtration. It is in this connection that troubles most frequently arise. The first factor influencing the nature of the chalky deposit is the shape of the causticizing vessel and the efficiency of the stirring mechanism. Next, the possession of suction filters for recovering the soda liquor left in the mud is practically a prime necessity. Arrangements for the economical washing of the mud, provided with scrapers to prevent the cracking of the cake on the fibre, are likewise necessary. The hardness of the factory water influences the causticizing process, in the sense that hard waters tend to give voluminous muds which are washed only with difficulty.

Next, the quality of lime used is of importance. "Fat" limes give a liquor of a higher degree of causticity than "lean" limes, but they also give a more voluminous mud, so that the lean "limes" are more economical owing to the greater care with which the soda can be recovered.

For every set of conditions there is a proportion of lime to soda ash which gives the most economical results, and it is important that this correct proportion should be determined in all cases. The quick lime is best added in the solid form to the ash liquor, previously heated to a temperature of 80-85° C. Further heating should be avoided, as it brings the silicates into a slimy con-

dition, which causes the mud to settle badly. On the other hand, a lower temperature than the above leads to deficient causticity.

Mr. Schacht has made investigations on the use of strontia for assisting the lime in the process of causticizing. If strontia be used alone the degrees of causticity is far more complete than when lime is used, it acts more powerfully than lime on the sodium carbonate and silicate, and even converts a large portion of the sulphate, sulphite and sulphides, which are always present, into caustic. But strontia alone is too expensive as a causticizing agent nevertheless, by making equipments and calculations of cost, it is possible to effect economies by performing the bulk of the work by lime, drawing off the clear liquor and then raising the degree of causticity by the addition of regulated quantities of strontia.



WANTS RETALIATION.

(Toronto Saturday Night).

A campaign of retaliation is about the only method open to Canada under the circumstances, and by the same token it is the only one which will win the contest for Canada in the long run. The United States has reached a point where she must have either Canadian pulp or Canadian paper. Absolute prohibition of the export of both pulp and pulp wood into the United States would naturally mean serious loss to Canadian lumbermen and pulp manufacturers for the time being, but at the same time it is without question the only argument which will appeal to Washington's tariff-crazy crew.



Lester H. Strawn, Ottawa, Ill., is selling out the equipment of the print paper mill of Mr. Boyce, of Marseilles, Ill., who is going abroad. See page 46.

EFFLUENTS FROM WOOD PULP MILLS.

The pollution of rivers by the effluents from sulphite wood pulp mills may be direct, e.g., by fibres, dissolved organic matters, and sulphurous acid, or indirect, e.g., by the growth and subsequent putrefaction of fungi and algæ. Of the first class of polluting substances, the cellulose fibres are the most objectionable and the most easily removed. These fibres (says a writer in a recent issue of the Journal of the Society of Chemical Industry) collect and precipitate impurities from sewage effluents and effluents of other factories, and are deposited in the form of a putrefying mud at the bottom of the river. In cases of damage due to pollution, e.g., fish poisoning or damage to crops after floods, the ease with which the fibres are identified causes the responsibility to be thrown on the pulp mill, even though the fibres are harmless in themselves and constitute only a small proportion of the mud. The cost of removing the fibres from the effluent is largely counterbalanced by the value of the recovered product, so that all mills should aim at discharging an effluent containing not more than 46-60 mgrms. of suspended fibres per litre, according to the size of the river. The waste liquors themselves, if diluted 100 times, are perfectly harmless to fish and vegetation, thus no direct damage is likely to ensue from their presence in the river. But the indirect nuisance caused by the growth and putrefaction of fungi may assume very grave proportions in a slow-flowing river. The waste liquors at their original concentration are absolutely non-putrescible; the growths are developed by the continuous feeding of the lyes into the channel in a highly dilute form. A mill producing 40 tons of cellulose per day will discharge about 300 cub. m. of original lye and 780 cub. m. of wash-waters. The lye will very rarely contain 4 grms. of free sulphur dioxide per litre, and this will be largely

neutralised by the basic constituents of the wash-waters. The best method of preventing growths is to adopt the system of periodical discharges of large quantities of lye instead of the continuous discharge of small quantities. The lyes and washings should be collected in a reservoir, freed from fibres, and discharged once or twice every twenty-four hours at such a rate that the total dilution of the original lye amount to 100 times. The time of discharge might be about 40 minutes, but every case requires particular consideration; much depends also on the degree of pollution by putrescible and deoxidising effluents from other sources.



TESTING PAPER FOR GLUE SIZING.

Many papers are sized with glue as well as rosin for the sake of imparting to them special hardness, handle, strength, and also the power of bearing erasures without showing much sign. To determine whether glue or any form of gelatine has been applied to a paper, proceed as follows:—

The paper is torn up small and boiled in distilled water for three or four minutes. The pulp is then filtered, and the filtrate is treated with a few drops of a solution of tannin. It is best to proceed quantitatively as far as possible, that is to say, to weigh out always the same quantity of paper, to boil it in a constant volume of water, and to add invariably the same amount of tannin, previously dissolved. If this rule is adhered to it is easy with practice to form a rough idea of the amount of glue in the paper, after similar experiments have been made with paper containing glue in the known proportions.

The addition of the tannin produces a white flocculent precipitate of tannate of gelatine (leather) if glue is present, and if the above suggestions as to quantitative work have been adopted a fair idea may be formed of the amount present by the volume of the precipitate

taken in conjunction with the time required to form it. Small amounts of glue are precipitated rather slowly by tannin.

Some papers are glue-sized superficially only. To determine whether this is the case or not, let a few drops of fused stearine fall on the paper from a burning candle. If the stearine penetrates through the paper there is no superficial glue sizing, and if the sizing has been well done the spots of stearine can be scraped off with a knife and leave no sign of their former presence.

It is worth remembering that papers already sized with glue in the pulp cannot be sized afterwards superficially, as the fresh size will then not adhere. Hence it is easy to see if this has been attempted, by rubbing the paper up between the hands. If a second sizing with glue has been executed on the finished paper the superficial glue will come off on to the fingers. If a glue-sized paper does not come off on the hand, the sizing has been done only in the pulp.



MORE ABOUT IMITATION BROWN WOOD PAPER.

In a recent issue we had an article on Imitation Brown Wood Paper to some of the statements in which C. S. Bandelin, of Grand Rapids, Wis., who is an expert in Kraft and Imitation Brown Wood Papers, takes exception. He also sends some samples of brown wood pulp papers made by himself, without any admixture, which we will be glad to show in our office to any one who is interested. The strength averages 3 to 4 kilometers, and about 50 per cent. of the sulphite would have to be used in order to get a sheet of equal strength from white pulp.

The writer of this article in question started out by stating that the genuine article consists of paper made from brown mechanical pulp with just enough of other kinds of pulp to give the neces-

sary degree of strength, as a paper, made from mechanical pulp alone would tear too easily to be of much practical service. This, Mr. Bandelin asserts, is absolutely wrong. No admixture is necessary for the strongest kinds of paper. Papers made from strained ground wood, without any admixtures easily reach a strength of 3 to 4 kilometres, is shown in the samples sent. Many papers even with 50 or more per cent. of sulphite are, he claims, not so strong. As to pure brown wood papers being restricted to a few special uses and requiring extreme care and delicate handling in their manufacture, our correspondent states that they run very easily on the machine.

The "natural" house papers have a strength corresponding to paper made from 50 to 60 per cent. of sulphite, but are far below the real "Kraft" papers (or sodium-sulphate), which usually has a breaking length of about 6,000 miles.

The methods described in our article, he says, seems to mean some kind of "imitated Kraft." Mostly all papers made in such a way have, however, a tinge of reddish, which is not to be found in the original article. (See samples sent and compare with a sample of original Swedish "Kraft," also in our office.)



PATENT BALL VALVE CIRCULATING SYSTEM.

The Ticonderoga Machine Works, Ticonderoga, N.Y., have patented in the United States (No. 916,810), and have made application for patent in Canada, for an improved circulating system for pulp under the above title. It is more especially designed for circulating fibrous stock, such as sulphite pulp, wood pulp, soda pulp, etc., from a stock chest to beaters, etc., and arranged so as to require comparatively little power to circulate the stock through the line and to prevent the water leaking out of the stock and thus obviating the harden-

ing of the same in the pipe line. The method is briefly described in the letters patent as follows:—

1. In a circulating system for fibrous stock, a pipe line, a branch pipe leading from the said pipe line, a valve seat in the beginning end of the branch pipe, a valve seat in the pipe line adjacent to and forward of the said valve in the branch pipe, and a valve adapted to be seated on either valve seat.
2. In a circulating system for fibrous stock, a pipe line, a branch pipe leading from the said pipe line, a horizontal valve seat in the beginning of the said branch pipe, an inclined valve seat in the pipe line adjacent to and forward of the said horizontal valve seat, and a pendulum valve adapted to be seated on either of the said valve seats.
3. In a circulating system for fibrous stock, a pipe line, a branch pipe leading from the said pipe line, a horizontal valve seat in the beginning of the said branch pipe, an inclined valve seat in the pipe line adjacent to and forward of the said horizontal valve seat, a ball valve adapted to be seated on either of the said valve seats, a valve stem for the said ball valve and extending up in the said branch pipe, a screw rod extending through the top of the branch pipe, on which screw rod the said valve stem is fulcrumed, and a nut mounted to turn and screwing on the outer end of the said screw rod.
4. A circulating system, provided with a circulating pipe having a **T**-section, an inclined valve seat in the forward portion of the said section, a branch pipe rising from the said section, a horizontal valve seat at the beginning of the said branch pipe, and a pendulum ball valve adapted to be seated on either of the said seats.
5. A circulating system provided with a circulating pipe having a **T**-section, an inclined valve seat in the forward portion of the said section, a branch pipe rising from the said section, a horizontal valve seat at the beginning of the said branch pipe, a pendulum ball valve adapted to

be seated on either of the said seats, and exterior means for raising and lowering the said pendulum valve.



LAKE SUPERIOR CORPORATION.

At the annual meeting of the Lake Superior Corporation held at Camden, N.J., very satisfactory reports were presented, the amalgamated interests being now practically free of debt. The result of the year's operations of all the subsidiary companies of the Lake Superior Corporation showed a surplus for the year of \$1,093,372.20. Of this amount \$501,424.46 has been paid by the subsidiary companies to the Lake Superior Corporation by way of interest and dividends. The remainder of the surplus has been set aside by the subsidiary companies, as in previous years, towards providing for depreciation, etc. The Sault Ste. Marie Pulp and Paper Company, a subsidiary company, manufactured 29,718 tons of ground wood pulp, an increase over the previous year of 3,470 tons. The office of president was again offered to C. D. Warren, who has held it for the past five years, ever since the company's reorganization under the auspices of the Ontario Government, but he declined the honor, that position being now taken by T. J. Drummond, of Montreal. The other officers elected were:— First Vice-President, J. Tatnall Lea; Second Vice-President, W. K. Whingham; Third Vice-President, J. Fraser Taylor; Secretary, T. Gibson; Treasurer, T. Gibson.



FELT WASHERS.

Nearly all felt washing tanks are provided with wooden rollers, which generally work enough to press out the soapy water from two or three folds of felt if necessary, without any tendency to slip or rub. The surface of both rolls must, of course, be kept in perfect condition, free from outstanding knots and also

from cracks, since the sharp edges of these will, under heavy pressure, soon grind away the fibres of the wool. Wooden rolls which are alternately wet and dry are bound to crack, and cracked rolls must be repaired by the insertion of a wedge of wood. Such wedge must be of the same kind of wood as the roll itself, since if of another kind the swelling and shrinkage will be different. Repaired rolls must be examined from time to time to see whether the wedges are standing out and require planing down. The wedges must be accurately fitted and fastened by long nails, the heads of which are sunk into the wood for at least half an inch. If the surface of the rolls be perfectly even, heavy rolls do the work far more satisfactorily and rapidly than light rolls. It frequently happens that the edges of moving felt work to one side or the other and get frayed by contact with the sides of the tank. The sides are often protected by light running rollers placed on the edge of the tank on either side at right angles to the press rolls. Generally these guard rolls run from one end to the other; they work quite well so long as only one edge of the felt is in contact with them. But when both the rising and the falling edge of the felt is in contact with the same roller the latter cannot revolve and friction occurs. This difficulty can be got over by placing two perfectly independent rollers on each side of the tank, so that one may engage the entering felt and the other the emerging portion, and they will then revolve inversely. The bearings of these rollers must be very lightly constructed, so that they will turn with the slightest contact with the edge of the felt without friction.



MULTIPLY PAPER BOARD.

An invention has been patented by H. C. Herr, of Detroit, relating to apparatus for forming paper board from a plurality of plies of paper, and it is the object of

the invention to provide means whereby strips of paper of considerable length may be accurately registered with each other, and firmly united to form the board. Where two paper strips are united by being pasted and then fed into contact, it is difficult to form a perfect union. The difficulties encountered are, first that the strips will not feed in perfect alignment, and consequently, after once being attached, the greater the length which is fed the more they will be out of registration. If guiding devices are employed for limiting the lateral deflection of the strips, these will only result in causing them to buckle and produce a blister or imperfect union wherever any correction in the direction of feed is made. With the new invention this difficulty is overcome, first, by aligning all of the several strips before feeding the same into contact with each other; second, by separately adjusting each of the strips to a surface against which they are pressed when united; third, in providing freedom to each of the successively applied strips to adjust itself to the strip previously laid in contact with the holding surface; fourth, in applying the paste to the surface of the strip last laid and which adjusts itself to the previously laid strip; fifth, in effecting the union of the strips during the reeling of the same upon a roll, and, sixth, by feeding the different strips tangentially to different points in the circumference of the reel.



HOW TO MAKE THE MILL PAY.

If in former days a paper mill, or a factory of paper material, did not yield remunerative results, the remedy was generally supposed to consist in improving the machinery or in enlarging the factory, and this idea was fully justified at the time. Now, however, we have reached or nearly reached the possible limit in both these directions, and the question of £ s. d. is still as pressing as ever. It seems impossible to run paper-

making machinery faster than is done now without spoiling the product, and, what is of equal consequence, without making its supervision too difficult.

A paper-maker who wishes to make a factory more profitable than it is at present must pay attention to a very large number of points. The machines of all kinds must be made to work at their utmost capacity, and there must be no waste of raw material. In securing this, special attention must be paid to the recovery of the fibres from waste waters. Human labor, the dearest of all kinds of labor, must be replaced as far as possible by machinery. But above all things discretion in saving is wanted. It is useless to try to save by using cheap raw material for making high-class paper, or by entrusting good work to a badly paid workman. Such penny wise and pound foolish policy does not pay in any case. True economy consists, in paper making as everywhere else in saving and in spending and in attention to details. A defective boiler may make a great hole in the profits, and any other faulty piece of plant. A stitch in time saves nine, and it is far better to face a present outlay than to suffer the drain on income involved by constant repairs, a drain which is supplemented sooner or later by the outlay which ought to have been made earlier. There is no greater mistake than to hang on to the last possible moment with rickety and out-of-date machinery. The owner of it may say if he likes that he cannot afford to replace it. If such is the case, he must give place to others. It matters little whether he does not replace it because he will not, or whether he continues with it because he must.

A very important point is the means whereby communication, especially as regards raw materials and half manufactured goods, is established between different parts of the factory. In a large factory, electric overhead transmission saves much expenditure on trolleys, belting, etc. The use of electric power is specially important in paper factories,

WANTED

Correspondence with parties interested in starting a mill for "natural" brown steamed wood-pulp and paper. The advertiser is a specialist in this line from Scandinavia. Highest testimonials. Address C. E. B., c/o Pulp & Paper Magazine of Canada.

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WOOD PULP AGENCY.—Advertisers, who possess extensive storage accommodation, with Railway Siding, on the North-east coast of England, and in established connection with Paper Mills, are desirous of taking an agency for the sale of Wood Pulp. Terms, etc., in strict confidence, by letter in first instance, to Box 3, Pulp & Paper Magazine.

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as they require so much water that in many cases the water power is sufficient to enable the factory to generate its own electric energy.

Carriage outside the factory is naturally a matter of the highest importance, both as regards the bringing of coal and raw material to the factory and the taking away therefrom of the finished products. As the railway companies very well know, they hold the field in most European countries, but in many places at a distance from the station some means have to be provided for crossing the intermediate districts, and, unless under very exceptional circumstances, it will be found that mechanical traction over this intervening space is cheaper than horse-work, whether over rails or not.



HOT OR COLD GRINDING OF WOOD.

In connection with the question of hot or cold grinding, F. Schneider, in the "Wochenblatt für Papierfabrikation," states that a steam grinding plant of 1,000 horse-power used to take its water for manufacturing and condensing purposes from springs fed by the adjacent river. The inflow channels of the springs were about 29 inches lower than the surface of the river. During the year of drought, 1904, the water level continually fell and reached an unprecedentedly low point. In order to provide water for condensation a piping was laid to the bed of the river for the supply of the engines and boilers. The supply for manufacturing purposes was restricted to the utmost possible extent of actual necessity.

So as to provide the paper factory with pulp, the hot water of condensation was conducted into the springs from which cool water was formerly taken, and the grinding was thus effected with warm water. This was an expedient of the superintendent without the knowledge of the firm. But when a better and richer pulp was obtained, and the paper ma-

chine worked without disturbance, while the paper had better surface and transparency, it was not considered possible that this result was due to the grinding with warm water. It must, however, be added that the water of condensation passed through a large, accurately working oil separator, and that the warm manufacturing water by the use of a pulp catcher was always kept in circulation.

Every plant, wholly or partially operated by steam can, without appreciable extra expense, grind with warm water. The use of the water of condensation in this case was an expedient, and there are other methods of obtaining hot water almost without expense. The introduction of warm or hot grinding, Herr Schneider remarks, reflects much credit upon its originator. He anticipates that in a few years only warm or hot water will be used for that purpose.

A distinction must be made between the use of warm water and the production of a warm or hot product, the latter sometimes resulting from high pressure in conjunction with the use of a small quantity of cold water in the form of spray.

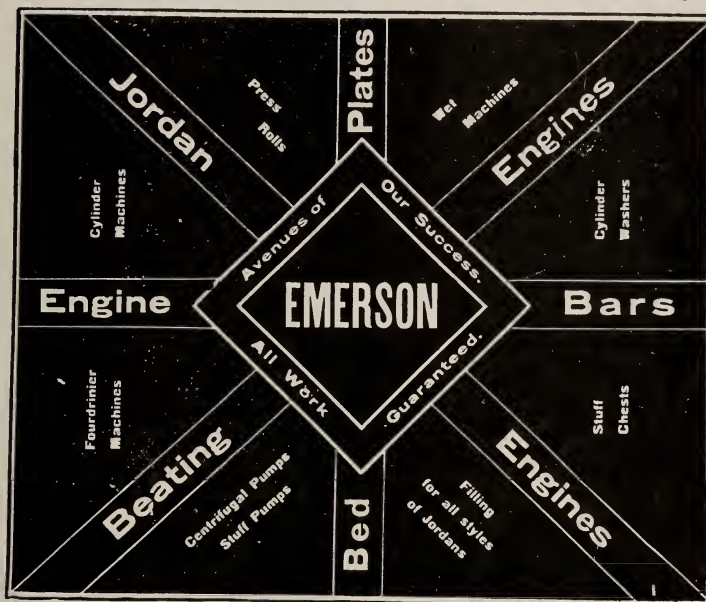


A dispatch from Prescott states that as an outcome of Canada's proposed export duty on pulpwood, a number of the prominent moneyed men of Ogdensburg are forming a company with the intention of starting a pulp mill in Prescott in the vacant building known as the starch factory. The price named for the property is \$35,000.

A considerable number of the employees of the Miramichi Pulp and Paper Company at Chatham, N.B., have now been paid, but report states that postponement has been made in the case of the leaders of the strike.

James Davy, of the Thorold Pulp Mill gave the "Pulp and Paper Magazine" the pleasure of a visit when he was in Toronto recently. He reports business fairly good.

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DIVIDENDS depend upon keeping production costs down for any given quantity of product.

Hence, the importance of studying and applying every *genuine, successful and demonstrated economy*.

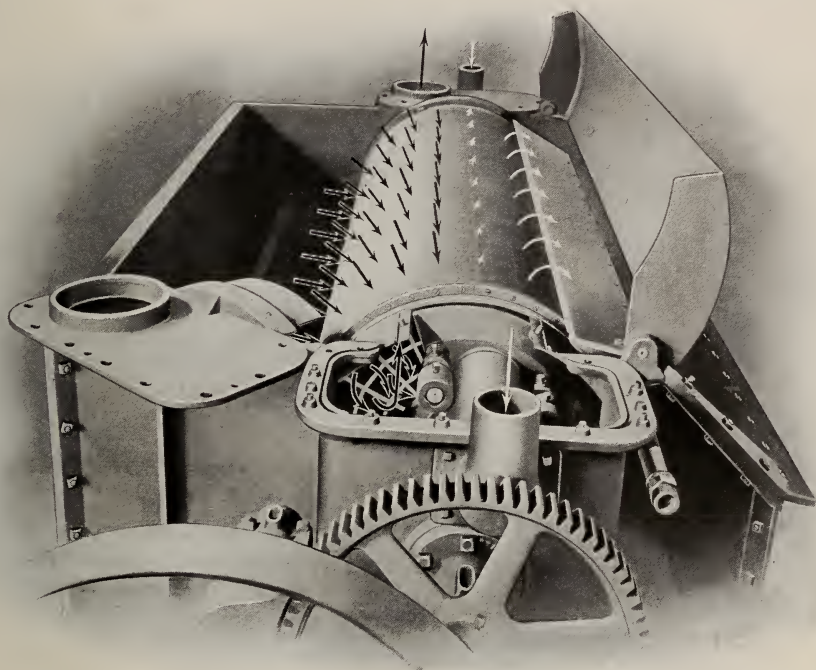
If you can make and market one hundred tons of product with the same amount and cost of raw materials that now produce ninety tons, what will this mean in increased dividends and in surplus?

Some mills, by working these problems out still further, are yielding now an output of one hundred tons with the same input that formerly gave only seventy-five tons. What does *that* mean in dividends, surplus, success of management, in opportunities to increase the plant?

Take one element alone—white-water waste. In this one detail probably an average of at least three per cent. of the total North American production of ground wood and sulphite goes to waste. That is the average result of many hundred tests. What does that mean in money?

There is no need of losing this amount. The means exist for reclaiming practically every penny of it. Some mills have come to look upon it as an unavoidable loss, but even these are being convinced when the right way is shown to them, and supported by a rigid guarantee.

The illustration shows a mechanism that is now reclaiming annually more than a million dollars' worth of this waste. It is a revolving cylinder mold fitted with pneumatic valves and piped to a blower. The cylinder revolves in the white water; the waste is drawn by suction upon the screen, held and partly dried there while the filtered water flows through and escapes. When the reclaimed stock is sufficiently dry (upon approaching the inclined plate at the right), it is blown off by a blast of air.



This action—automatic, uniform, continuous—is the basis of the Pneumatic Save-All. There is no couch to rub the fibres through or to wear out the screen. Hence, fine screens are used. Yet they do not choke up, because of the air blast. With these fine screens far finer fibre is saved than the same screens could save without the pneumatic action, and the capacity is (because of this action) enormous.

If with this device you can save over ninety per cent. of your waste at a cost of a few cents a ton, and sell it for exactly as good a price as you get for your standard product, what will that fact mean to you each year in money?

Let us tell you all about the Pneumatic Save-All.

A good way to find out, first, is to send us a sample of waste water for testing. We have sample-mailing cases for this purpose.

SHERBROOKE MACHINERY COMPANY
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THE MARKETS.

Toronto, October 9th, 1909.

The general business outlook is very favorable as a result of easy money and good crops. There is not a very strong demand, however, for news print. We understand that contracts have been made for news for delivery throughout the coming year on a basis of \$2.10, though it is to be presumed that this is subject to tariff changes. Book and other grades of paper are experiencing good demand at firm prices, and the mills, as a rule, are running full time. The indications are that there will be a continued improvement in the paper business with the approach of winter, several catalogue inquiries having already come to hand from houses which last year printed only small supplements. For ground wood the demand from the States is very good, mainly owing, however, to the very low water which has prevailed in several manufacturing sections for many weeks past. The rainfall has been materially smaller during the past summer, even than last year, when it was very much shorter than for many years previously. The general quotation at the mill is \$21 to \$22. Sulphite is on the dull side, and in keeping with large shipments from Sweden at low prices, quoted, it is supposed, in order to induce purchasers and bring in money to help finance during the strike.

Advices from Scandinavia state that the strike is now practically over, many of the hands having returned to work.



BRITISH MARKETS.

"The World's Paper Trade Review," London, reports that now that the labor difficulties in Sweden are nearing the end, supplies of chemical pulp will soon be coming forward on old contracts. There is no disposition to go in for new business on the part of British paper-makers, and prices are practically un-

changed. Prices for mechanical pulp are stationary. As there is plenty of pulp reported on the other side, and few enquiries on this, there is not much likelihood of better prices ruling.

A better enquiry is experienced for all classes of paper stock. W. Manilla Rope is firmer. Very little new business in foreign rags is being transacted; prices unaltered.

For chemicals there is a better enquiry. Prices are steady. Ammonia alkali, 58 per cent., is quoted £4 10s. f.o.b. Liverpool; bleaching powder, soft wood, £4 7s. 6d. to £4 10s.; caustic soda, 76-77 per cent., £10 15s. to £11; salt cake; £2; soda crystals, £2 17s. 6d.; and recovered sulphur, £5 5s.



USE FOR OLD PAPERS.

Old, torn and dirty papers are usually regarded as articles without value, but a market is easily found even for what are apparently the most hopeless cases. At a cost of about 15s. a ton they can be pulped, and worked up into floor coverings, which with a thickness of about one-third of an inch have the durability and elastic tread of linoleum. When we consider that the old papers cost say 7s. per ton as against about 40s. per ton for sawdust, the profits to be drawn from this manufacture when it is in right hands can be imagined.

A new flooring of this kind must, however, be oiled, after having been laid down, with petroleum or any cheap vegetable oil. This will prevent it from going mouldy, and will also enable it to be waxed or varnished, whereby it will become as durable and as brilliant as the best inlaid wooden floors. Great interest has arisen in Germany with regard to this new industry, and experiments are in progress to test the effects of adding other bodies, such as pitch and mineral pigments to the paper pulp so as to manufacture floor coverings of different colors and qualities.

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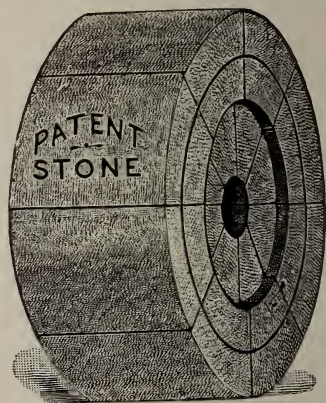
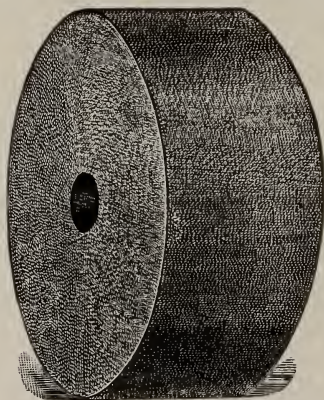
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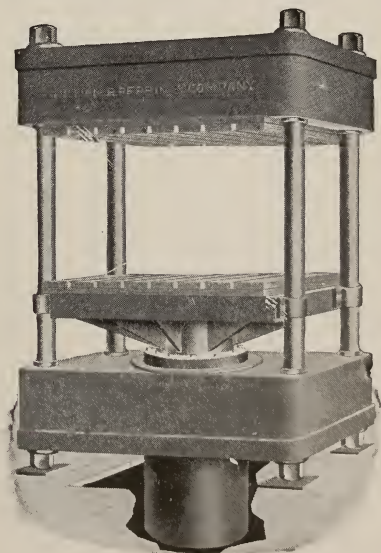
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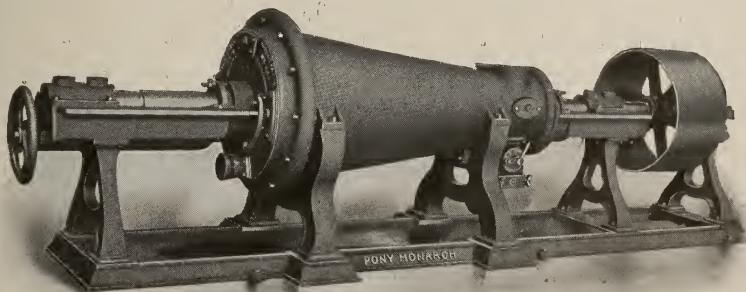
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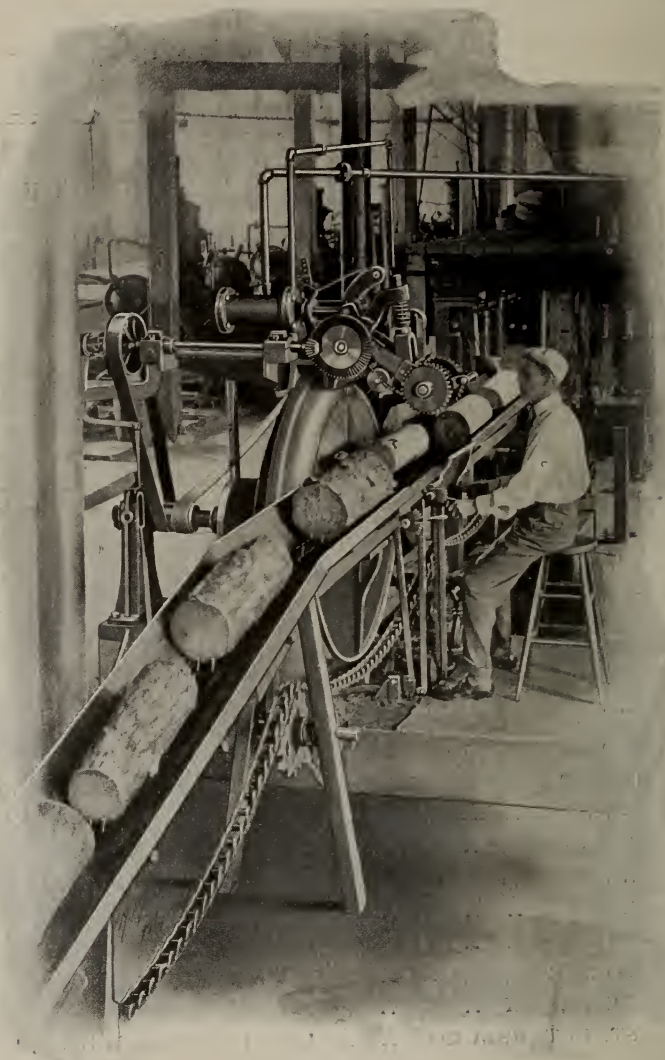
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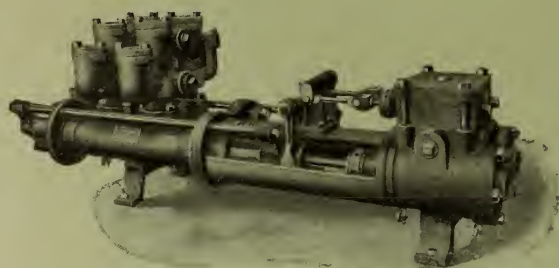
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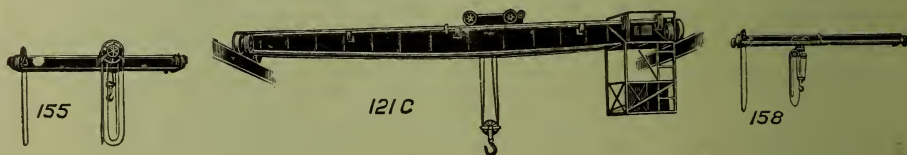
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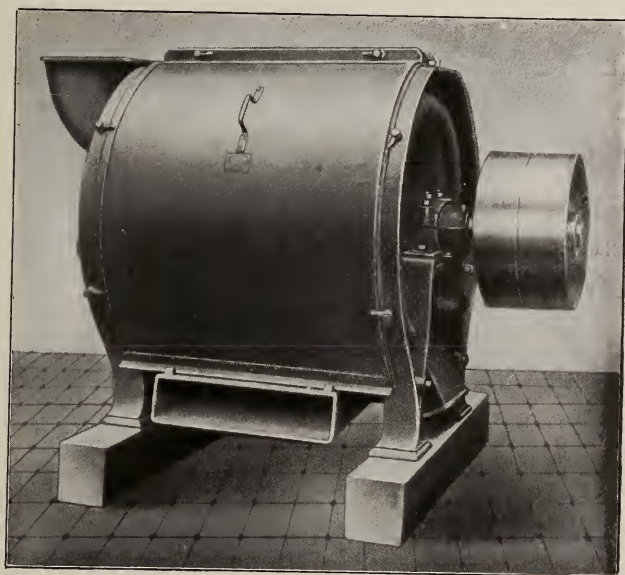
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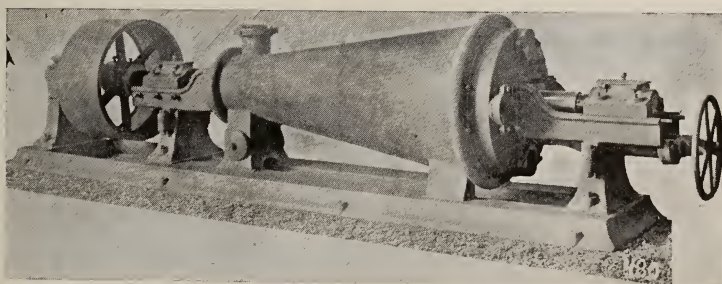
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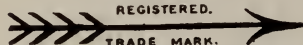
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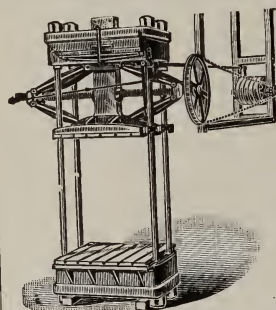
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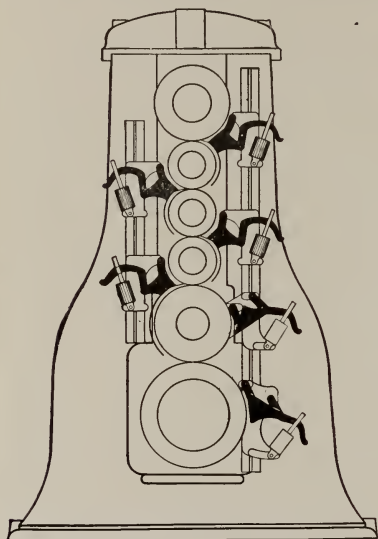
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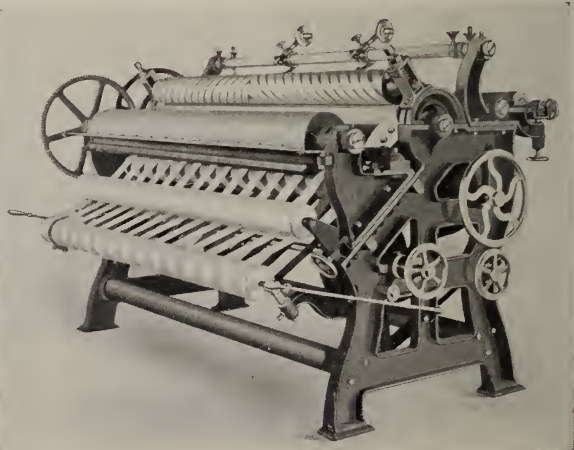


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- ☞ We are also sole Canadian Manufacturers of the *Wandel Patented Rotary Screen for paper stock*.
- ☞ *Over four thousand* of these screens are in use in the paper mills of *Europe*, and this screen is being rapidly adopted by Canadian and United States paper mills. *Over fifteen* have already been *installed*.
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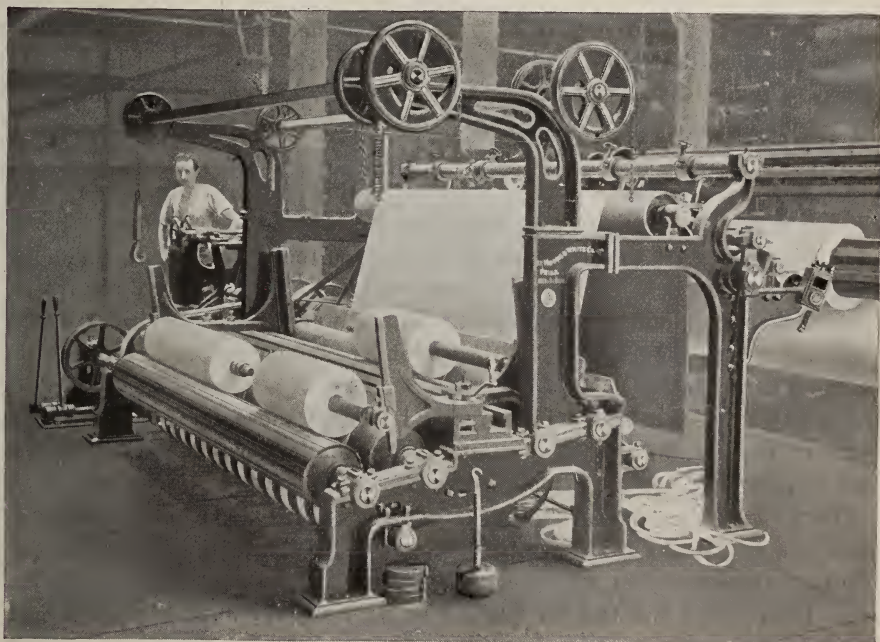


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SPEED CHANGES

FRICTION CLUTCHES

The Problems of Preventing Waste

THE saving of waste forms one of the bulwarks of modern industry. Yet, in every branch of industry *the successful methods of saving have had to be worked out experimentally on special lines.*

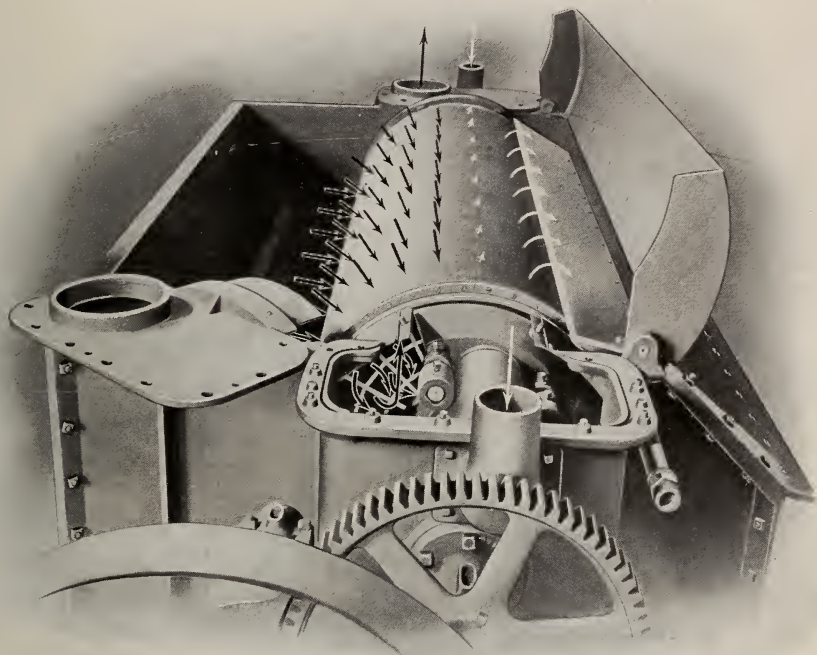
The saving of waste in pulp and paper mills (for example, the "white water" waste) has proved to be especially difficult. The waste stock from various parts of the mill is thinner than the stock that is used in the regular processes *and will not yield to the same methods of treatment.* That explains why previous devices for saving it have failed—they have not been adapted to the nature of the waste stock.

For example, if one tries to catch this stock by couching it off a cylinder mould it slips through the covering at the point where the couch touches it. It is too thin to stand the contact of the roll. Again, if you let this thin stock flow over a screen, the mere eddying of the fibres along the screen gives each fibre countless chances to find a hole to slip through; hence the great majority of them do so. If the screen is inclined at an angle, the results are worse still.

You can get a rough but practical idea of these facts by putting some flour on a sieve. So long as the sieve is not shaken or slanted or rubbed the flour will be held without going through. *But touch the wires with a pencil and there is a shower of particles at that point.* That is just what happens where the couch-roll touches the screen when a cylinder machine is used to reclaim waste stock.

Or hold the sieve at an angle and let the flour slide along its surface. Before long all of it will go through. *That represents what happens when you try to screen the waste out of the water.*

Now the one way by which all the stock in waste water can be removed successfully is by partly immersing a revolving cylinder mold in the white water, and drawing the waste against its wire covering by pneumatic suction. If the suction is adjusted right, the fibres will be drawn upon the wire with just enough impact to hold them there while the cylinder lifts them above the surface and



the water drains away. They will not be rubbed through, for nothing touches either them or the wire. They will not drop through because their natural adhesions are sufficient to hold them together against the delicate pressure of air, since they remain in the spot which they first touch and are not permitted to slide along the screen.

When the reclaimed stock reaches a point where it is dry enough, it can be blown off by an air blast, suddenly and from within the cylinder.

That is the way the Pneumatic Save-All works ; the way the thin stock can be saved ; the way this Save-All is saving it to-day in hundreds of installations from one end of North America to the other.

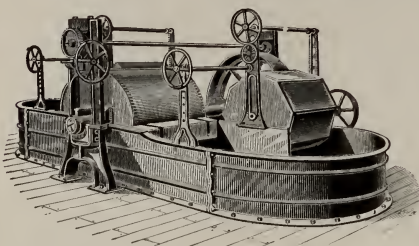
The illustration shows something of this method. Black arrows indicate the part of the Pneumatic Save-All cylinder mold covering acted on by suction, where the waste stock is caught and held without sliding or rubbing while the water is drawn out of it by suction. White arrows indicate where the thickened stock is removed by an air blast.

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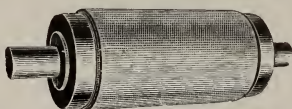
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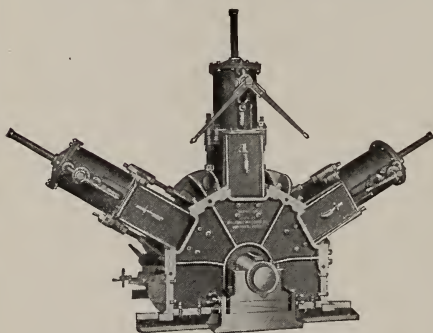
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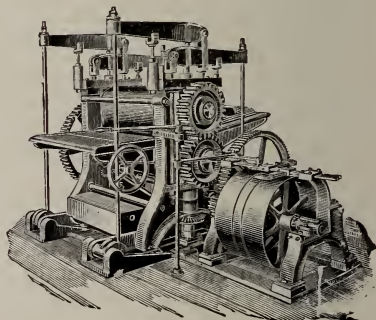
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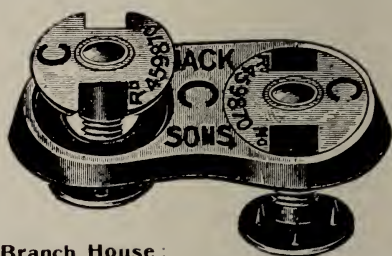
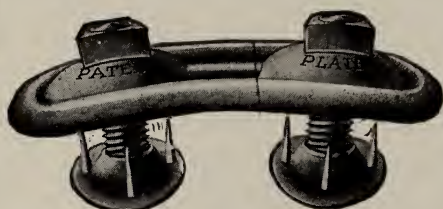
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THE PULP AND PAPER MAGAZINE OF CANADA

Vol. 7.—No. 11. TORONTO, NOVEMBER, 1909.

{ \$1. A YEAR
{ SINGLE COPY 10c.

Pulp and Paper Magazine

A monthly magazine devoted to the interests of Canadian pulp and paper manufacturers and the paper trade

SUBSCRIPTIONS: Canada and British Empire, \$1.00 per year United States and Foreign, on account of postage \$1.50 per year.

The Pulp and Paper Magazine is published on the second Tuesday of each month. Changes of advertisements should be in the publishers' hands not later than the 1st of the month, and, where proofs are required four days earlier. Cuts should be sent by mail, not by express.

BIGGAR-WILSON, Ltd.,

PUBLISHERS

OFFICES, CONFEDERATION LIFE BUILDING,
TORONTO, CANADA.

THE UNITED STATES TARIFF BUNGLER.

For a good lively boomerang commend us to Uncle Sam's schedule of duties on pulp and paper. Canadian pulp and paper men, for whose special benefit (?) the new tariff was created, seem the least excited people on the continent. The cartoon on page 303 seems to represent what has happened rather aptly. Even the newspaper publishers who must be looked on as being the originators of all the trouble and confusion, are now hot-foot for another revision. Herman Ridder, president of their Association, supported by other important press organizations, has addressed a very frankly expressed letter to President Taft, telling him flatly that he has been misled by designing men into a serious blunder,

the result of which may be to precipitate a trade war with Canada involving the annual sum of \$285,000,000, Messrs. Ridder & Norris regret that the findings of the Mann Committee, which reported that a rate of \$2 on paper would cover the difference in cost of production between at home and abroad, were not acted on, because now "the fixing of the rate of \$3.75 per ton has decided the Province of Quebec to prohibit the exportation of its pulpwood and many American paper mills must close or move to Canada to obtain their supplies of raw material."

Congressman J. R. Mann, in backing up the resolution of which the above letter to the Chief Executive is the outcome, calls for an effort when Congress meets to have duties on print paper repealed (which Mr. Norris thinks is the only course which will now appease Canada), and to postpone the action of the maximum tariff. "There is no sense," says Mr. Mann, "in having a tariff war with Canada over paper. There are enough forests in Canada to supply paper for centuries. Our paper mills depend on Canada for logs. Canada is not going to let us have the logs we need if we shut out Canadian paper by a high tariff."

Despite the clamor of the publishers and other interests in the United States, however, it is difficult to see how Presi-

dent Taft and his advisers can make another lightning-change in their pulp and paper tariff policy. That is, without eating their words. But that is exactly what seems likely to happen. Reports from various sections of the Republic are to the effect that the consequences of endangering trade relations with Canada promise to be so disastrous to the party responsible for such action that there is little likelihood of the terms of the maximum tariff being brought into force permanently against this country. According to the new law the President has the right to say whether any country or subdivision thereof does or does not manifest discrimination against the United States; and it is of course only as the direct result of such alleged discrimination that the maximum duties are supposed to apply. It is admitted to be easy to show that Canada or certain of its provinces, do discriminate; but on the other hand it is easy to be blind to what one does not want to see. A tariff commission has been appointed at Washington and some cynics believe, or affect to believe, that an important part of its task will be to advise the President that Canada does not discriminate against the United States, and that therefore there will be no occasion to put the maximum duties into effect against the products of Canada.

In Canada the strongly expressed opinion of those in the trade, as well as of the general public, is to "sit tight and await developments." For the United States to place further hindrances in the way of importing Canadian pulp and paper because Canada very wisely puts into effect its desire to conserve its resources is like cutting off another slice of the former's nose to spite its face. It is a sort of

game they cannot play at for very long. The newspaper publishers have already found this out to their cost; and so have the paper manufacturers. This is why our paper manufacturers keep so cool amidst the excitement of their neighbors to the South. It is true, however, that amidst the almost unanimous determination of Canadian paper interests to let things take their course, one prominent paper man upholds the idea of immediate business interest before sentiment. Mr. John R. Barber, of Georgetown, who admits he is like one crying in the wilderness, points out the advantage which would accrue if Quebec, before present leases expire, would abolish the difference between fees charged on wood made into pulp at home and abroad, and if Ontario would abrogate for a year the prohibition of export on wood cut from Crown Lands. The former province would then be able to ship its pulp into the United States free of duty, and its paper for \$3.75 per ton instead of \$6; and the latter province would save the duty of \$1.67 on pulp and its paper would go in for \$3.75 instead of \$5.75, at any rate until March next, when developments may have taken place. Incidentally, the United States Treasury would be "out" a very considerable sum, which would redound to the benefit of Canadian manufacturers. Apart from this, as we have said, the overwhelming feeling is to stick to our guns and let the United States do what it pleases.



STRANGE ATTACK ON HARMS- WORTH MILL.

"The New York Herald" recently made an extraordinary attack—in the shape of two entire pages with illustra-

tions followed by a column per day for ten days—upon Lord Northcliffe's Newfoundland pulp and paper enterprise, which has just been completed amidst the congratulations of the whole Island, and of hundreds of distinguished visitors. Whatever may be the "Herald's" motive, whether it be a case of sour grapes or of jealousy of the way in which the London "Mail" is eating into "Herald" popularity in Paris, Jas. Gordon Bennett's place of residence, is not known. But most people agree that, even if the allegations made in the onslaught were true, which is not likely, there has been a great display of very bad taste. A newspaper may with propriety criticize an enterprise, stock in which promoters are trying to induce the people to buy. It may be in the public interest to make such attack. In this case, however, as we understand it, the nascent industry is a privately controlled one, being financed by Lord Northcliffe and his own publications.

As to the enterprise itself, there is, of course, a possibility of disappointment or failure (in what undertaking, great or small, is there not this possibility?) But we see not the slightest reason for expecting such failure; nor do those who know Newfoundland and the Exploits River Valley as thoroughly as they can be known at this stage. For instance, A. W. Waugh, New York, of the British-American Pulp and Lumber Company, who is thoroughly familiar with the whole property, is emphatic in his belief that the "Herald's" story is all wrong. The "Herald" says that of the 2,000 or more square miles of timber limits, 500 miles are barren or swampy, and that over the larger part of the rest, forest fires had rendered it largely worthless

for pulp purposes. Incidentally, it may be mentioned, that these fires occurred several years before the very rigorous inspection which Lord Northcliffe instituted before purchasing. Besides holding up to ridicule the plans for adding to the comfort of employees by erection of houses, clubs, etc., our enterprising contemporary suggests that transportation facilities are of the most meagre description and that profits will be eaten up by abnormal rates over the Reid Railway. Mr. Waugh states in this connection that for eight months in the year large trans-Atlantic vessels can enter the river and dock at the mills and that for the other four months, even if the Reid Railway were disposed to charge exorbitant freight rates, the Government, which has a heavy stake in the development of all possible industries in Newfoundland, would step in and prevent it. It may be mentioned, too, that Lord Northcliffe intends establishing a steamship line from Newfoundland to Great Britain. Mr. Waugh also states that the spruce found in the Exploits Valley is as good as anywhere in the world; also that sufficient power and transportation facilities are at hand, and that the only thing that can possibly lead to failure is bad management. We think that Lord Northcliffe has already proven to the world through hosts of enterprises, large and small, that this factor is one which is distinctly unlikely to enter the field.

The "Herald's" attack was directed not only against the Harmsworth paper project, but against Newfoundland as a field for industrial enterprise. That island for a long time was misunderstood; fog and disaster for centuries seemed associated with its very name. But with the past few years these ideas

have given place to better knowledge, and its wonderful possibilities have become more fully recognized. There is no reason to think that a series of sensational articles such as those of the "New York Herald," can do anything to arrest the certain development of that rich country.



NEW BRUNSWICK'S POLICY.



As mentioned last month the Government of New Brunswick is now considering its pulpwood policy, and it is likely that a decision will soon be arrived at. In view of the great areas of spruce land and the natural facilities for manufacturing pulp and paper in New Brunswick it is likely that the Government will adopt the conservation policy of the other leading provinces and prohibit the export of pulpwood from Crown lands. Such a policy would soon lead to the erection of more pulp and paper mills, and New Brunswick will one day be as famous for its paper industry as it has been in years past for its shipbuilding and lumber industries.



—The Winnipeg branch of the Pullan Paper Stock Company, Toronto, was damaged by fire to the extent of over \$6,000.

—In the three months ended September 30th last, \$46,675 worth of pulpwood was exported from the St. John, N.B., district to the United States, and \$147,901 worth of wood pulp.

—Mr. Thos. Gain, of the firm of Thos. Gain & Son, has sold out his interest to his son, Mr. J. H. Gain, but the business will still be carried on under the old name. Mr. Gain, Sr., has been appoint-

ed manager for the Don Valley Paper Company, Limited.

—Receipts of the Newfoundland Crown Lands Department for the four months ended October 31st last show an increase of \$50,000 over the same period of last year. This is one result of the large pulp and paper developments in the island.

—E. W. Backus, of Minneapolis, President of the Fort Frances pulp mill, states that the company's paper mill at International Falls is rapidly approaching completion and will almost certainly be in operation by next February. It will have a daily capacity of 175 tons of ground wood pulp, 100 tons of sulphite and 200 tons of news print paper. Their principal market would be the middle states from Detroit to Denver, though they expected to do business also in the Western Canadian market. As soon as the mill at International Falls is in active operation the Minnesota and Ontario Power Company will begin a second unit at Fort Frances of similar capacity, specially to supply the market of the Canadian West. Up to date, the first unit represented a cash expenditure of \$5,000,000, exclusive of property rights. The company have contracted with a Minnesota firm for 300,000 cords of pulpwood to be delivered at Fort Frances by May next.

—J. R. Booth's new box board mill at Ottawa is ready for operations. This new power house is making good progress. It will contain three wheels each with a capacity of 3,000 horse-power.

—Commissioner Whipple, of the New York State Fish, Forest, and Game Commission, in showing the rapid growth of public interest in practical forestry matters, calls attention to the ever increasing number of applications filed for purchase of young trees. Last year more than 1,000,000 pine and spruce trees were put out by the State at cost. This year the department will distribute about the same number.

PULP AND PAPER NEWS

A request made to the Canadian Federation of Labor by the striking pulp mills in Scandinavia was turned down.

* * *

J. G. Sutherland, sales manager for the Sault Ste. Marie Pulp and Paper Company, has resigned to go to Minneapolis.

* * *

The Ontario Government is calling for tenders (up to 15th inst.), for another strip of land in the Gillies timber limits, containing 1,200 acres.

* * *

Henry Disston Saw Company, Toronto, have ordered a Duplex Pump for their new works, from the Smart-Turner Machine Company, Limited, Hamilton.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, have supplied the Hanover Specialty Company, Hanover, with one of their single vacuum pumps.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, are supplying the Aluminium & Crown Stopper Company, Toronto, with a Rotary Pump.

* * *

J. Eppler, an employee of the Lincoln Paper Mills was buried under a sliding embankment of the raceway at the new mill at Merriton, and was only rescued with difficulty.

* * *

The Fowlers Canadian Company, Hamilton, have placed an order for a Duplex Pump with the Smart-Turner Machine Company, Limited, of the same place.

* * *

The Temiskaming & Northern Ontario Railway, North Bay, have ordered a Duplex Boiler Feed Pump, from the Smart-Turner Machine Company, Limited, Hamilton, Ont.

* * *

The Harris Abattoir Company, Toronto, have ordered a Simplex end outside

packed pot valve pump from the Smart-Turner Machine Company, Limited, Hamilton.

* * *

At B. C. Howard's rossing plant at Beauce Junction, Que., a new rossing machine is being tested. It is the invention of Mr. Campbell, of the Sherbrooke Iron Works, Sherbrooke, Que.

* * *

The New Brunswick Pulp & Paper Company, Millerton, N.B., have ordered a Duplex outside-packed plunger pump with pot valves, from the Smart-Turner Machine Company, Limited, Hamilton, Ont.

* * *

Mrs. Brown, wife of Mr. Richard Brown, of Brown Brothers, Limited, wholesale stationers, Toronto, died suddenly of heart failure a few days ago. She was born in 1839, and had lived in Toronto 60 years.

* * *

The Smart-Turner Machine Company, Limited, Hamilton, have supplied Duplex Power pumps to the Burlington Canning Company, Burlington; Groble & Wandry, of Mimico; and the Hamilton Bridge Works Company.

* * *

Among new directors recently elected by the Eastern Townships Bank at Sherbrooke, Que., may be mentioned the names of B. C. Howard, of Howard & Craig; and Frank N. McCrea, of the Brompton Pulp & Paper Company.

* * *

The James Maclaren Company's mills at Buckingham, Que., brought up 100,000 additional pieces of pulpwood up the Lievre River owing to their heavy consumption this season, which they were enabled to do owing to the large supply of water-power.

* * *

O. A. Porritt, managing director of the Jonquieres Pulp Company, Jonquieres, Que., paid a business visit to Toronto

last month. This company is putting in a second machine, 120 inches in width, for the manufacture of manila for envelopes, etc.

* * *

The British Columbia Government is said to be about to cancel pulp leases held by parties who have not complied with the regulations, unless it be shown that this deficiency is about to be repaired. So far as we know, only four of these leases are now in existence.

* * *

Mr. H. Burcham Harp has been appointed general manager of the British American Wax Paper Company in place of Mr. Van Hann Wilshire. He reports business very good, to such an extent indeed that the company contemplates increasing the size of its premises.

* * *

The Bersimis Company, which ships pulpwood to New York State paper mills has purchased 36,000 acres of freehold land from the Quebec Central land subsidy, in order to protect their newly established pulpwood business. The paid price is understood to be \$5 per acre.

* * *

James Lawler, Secretary of the Canadian Forestry Association, has, during the last few weeks, delivered lectures illustrated by lantern slides, on forestry subjects, at Berlin, Kenora, Fort William and other places. The addresses were of a descriptive and popular character and much interest was aroused.

* * *

The St. Lawrence Paper Mills Company have opened offices at 8 Wellington Street East, Toronto. They are erecting an addition to the mill at Milles Roches for a finishing room. It will be 185 by 80 feet, two storeys high. Three new supers are also being put in, and other improvements made.

* * *

It is understood that the Northern Construction Company, which recently procured a large pulpwood area in the Rainy River district, will build a pulp

mill at Turtle. An agreement by which the timber will be transferred from the Government, included a clause that the mill should be built somewhere in the district.

* * *

The work of building dams for conservation of water power in the Ottawa River makes good progress, and it will almost certainly be finished in time to prevent waste next spring. It is believed that 100,000 horse-power will be a certainty for the Chaudiere in the future. Meantime the pulp and paper industries are favored with high water.

* * *

The Nepisiguit Lumber Company has taken possession of the extensive lumber properties of the Adams, Burns Company, Limited, Bathurst, N.B. In this company large shareholders are the Messrs. Sisson, of the A. Sherman Lumber Company, New York, who own large pulp and paper mill interests in New York State and Tennessee. It is expected that the Nepisiguit Company will shortly make arrangements for the manufacture of pulp.

* * *

As mentioned in a recent issue, tests have been made recently on the use of waste sulphite liquor for putting on roads to combat the dust. Geo. H. Millen, of the E. B. Eddy Company has made more extended experiments and they are said to be highly successful. The fluid seems to bind the earth together especially if applied two or three times. The by-product has been thrown away by the E. B. Eddy mills at the rate of 25,000 gallons a day. It is possible the fluid can be improved by the addition of other ingredients. Ottawa city engineer will make further experiments.

* * *

We regret to learn of the death of James D. Finlay, superintendent of the Alex. McArthur & Company's mill at Joliette, Que. Mr. Finlay was superintendent of the Toronto Paper Company's mills at Cornwall for 16 years. Other mills of which he has had charge during

the 30 years he has been in America were the Albion Paper Mills, Holyoke, Mass., before coming to Cornwall; the Royal Pulp and Paper Company, East Angus, Que., the mills at Waterlet, Mich., and for the past seven years at Joliette, Que. He was a native of Scotland, and was 63 years of age.

* * *

The steamer "Empress of India," sailed for the Orient last month with the first shipment of Canadian pulpwood sent to the east from Canada. One hundred and sixty bales, each weighing 250 pounds, were taken from the new pulp mills at Swanson Bay to Kobe, Japan. In this connection it is interesting to note according to recent tests on samples of sulphite pulp made from British Columbia wood, that whereas only 17 per cent. of sulphite was necessary to give the requisite strength to paper, 25 per cent. was required of the Norwegian article.

* * *

Mackenzie and Mann interests will start work next spring on a new branch of the Quebec & Lake St. John Railway from Roberval running northwesterly to the recently-opened mining district of Chebougamou. The line will be pushed through during the summer to Chute a l'Ours, thirty miles northwest of Roberval. At this point there are very extensive water powers owned by the Provincial Government. It is stated that a big pulp and paper concern is negotiating for the purchase of these powers, and will build large mills there as soon as the railway communication is secured, which will probably lead to the building of a new town.

* * *

The small water wheel for the Lincoln Paper Company's Lybster mill, Merriton, Ont., is being installed. The casing is for a double wheel, and was constructed by the Jenckes Machine Company, Sherbrooke. It is of the latest improved type, with a wheel in a protecting casing, and this again in an outer case. The shaft will connect direct on to the gener-

ators without pulley wheels and belts or gearing of any kind. The large wheel is expected to arrive very shortly.

* * *

At a meeting of the Montrose Paper Mills, Limited, Thorold and Toronto, the following officers were elected:—President and manager, T. A. Weldon, Toronto; vice-president and treasurer, George R. Copping, Toronto; secretary, I. H. Weldon, Toronto; directors, S. B. Monroe, Kalamazoo, Mich.; W. M. Loveland, Kalamazoo, Mich.; A. A. Wheat, Kalamazoo, Mich.; I. B. Duncan, Cornwall, Ont. Plans were discussed for the improvement of the mill at Thorold. Much money has already recently been spent by the new company. It is the intention of the company to manufacture the better grades of paper and high-class writing and bond paper. John Redmond, formerly superintendent of the Kalamazoo Paper Company has been appointed superintendent. Offices have been opened at 8 Wellington Street East, Toronto.

* * *

The Quebec Government have disposed of 508 square miles of timber limits along the line of the Transcontinental Railway. The prices obtained were good. These lots will draw an annual rental of \$5 per mile ground rent. The leases must pay a good excess over certain upset rates of stumpage. Tenders were called for October 12th, the prospective lessees to bid the amounts that they were prepared to pay over and above the figures given. The result is satisfactory, the high upset prices of the Government being in all instances exceeded, and in one case considerably so. It is forbidden to cut trees of a less diameter than ten inches on the stump, measured three feet from the ground, and any timber which in the opinion of the department may be utilized shall pay dues if left in the bush uncut or unhailed. All timber is to be manufactured in Canada. The grantees shall, according to law, take the necessary steps to prevent and extinguish fires, and the permits are subject to the timber laws.

COUCHING FELTS.

Felts form one of the most important items in the budget of a paper mill, and means are always being sought for cleaning them without any risk of disturbing the work of the mill.

The felts that wear the fastest, and are therefore the source of most expense, are usually the couching felts. They are traversed as a necessary consequence of their position in the paper machine by large quantities of water containing size. Hence they very soon get dirty, and it has become customary during the last few years to fit the machine with washing presses, one inside the felt, and serving as its cylinder, and one outside and covered by a sheath. Before coming between these two presses the felt passes between a number of rinsing jets, the water of which, being under very high pressure, softens the resin and loadings which tend to adhere to the surface of the felt. Once soaked with water, these bodies are partly eliminated by the pressure which the felt undergoes in passing between the washers. We say partly eliminated because, although the rinsing jets deliver large quantities of water, and the pressure of the washers is very great, the elimination of the impurities is never complete.

It is often found that the couchers crush the web, in spite of normal action on the part of the washing presses. The attendant has then but one resource—to stretch the felt; but it generally goes on crushing, in spite of the tension. If for reasons of drying or sizing the attendant cannot lower the couch rolls, he will be reduced to stretching his felt in an unsuitable manner, or to removing it from the machine for washing it apart. The latter course of action is one to which he will resort the least often, especially if he is working with a high speed machine. Hence he will prefer to stretch his felt excessively until, no longer able to resist the tension, it tears before it is quite worn out.

Under these circumstances there is a tendency to blame the attendant, but he is sometimes fully excusable.

Up to the present time in many paper mills the felt has never been stretched to prevent it from crushing the web, except lengthways, and the result has been far from corresponding with expectations. It is supposed that by stretching the felt the meshes of the fabric are widened whereby the passage of the sizing water is facilitated. This is, however, a mistake. Everyone knows, in fact, that if any cloth is subjected to fairly severe tension it loses in width what it gains in length, and the meshes lengthen until they are obliterated by the warp threads coming into actual contact with one another, when as regards the passage of a liquid, the cloth is rather less permeable than before it was stretched. This is the case with a felt. When it crushes the paper, and when it is stretched to remedy matters, the crushing is stopped for the moment, but soon reappears.

This is what happens:

When the felt has been in use for some time, even when it has passed between the rinsing jets and the washing presses, its nap is flattened down and made pitchy by the resin in the size. If the felt works straight the attendant lets it go on for a long time. The nap is not deranged, but is bedded into the fabric. Then as the nap has become pitchy it presents to the web at last a surface of unequal permeability, and the size water pressed out of the web finds difficulties in passing through the felt, and puts the fibres of the web out of their proper order. Hence the crushing.

Now, if at this moment the felt is stretched, the crushed places really disappear, because the nap is raised again by the tension. But directly afterward, when the nap has subsided again, the same trouble reappears. Hence it is easy to see that stretching a felt, even to the utmost limit, cannot be depended upon to prevent it crushing the web sooner or later.

The remedy for all these troubles is to stretch the felt both ways, i.e., in the direction of its width as well as in the direction of its length. To do this all that is wanted is to have two divided rollers, the two halves of each roller forming an angle, one roller being in front of the couching presses, the other in front of the washing presses.

only. Hence the middle of the felt has to stand, unassisted by the rest of the fabric, two contrary tensions, and will finally give way. The divided roller should form a small angle only, say, with its ends about one inch in front of its middle; and it should not be smooth, but finely grooved, with grooves not exceeding one-eighth of an inch in depth.

MASHED TO A "PULP."



Uncle Sam's thumb gets under his own little tariff hammer.—Toronto "World."

Many mills have discarded these rollers, with the idea that they drag the felt in the middle and so tear it. This is a mistake, although if the angle is too sharp and the roller is too heavy on the felt, the effect feared may be produced, and the felt will be torn, because each half of a smooth roller will drag half the felt, not all over, but at the middle

If this arrangement is adopted, it is clear that the grooves will compel the roller to act all over the width of the felt and stretch it uniformly, and not exclusively at the middle of its width.

To enable the attendant to use the divided rollers in the best possible manner they must be mounted in adjustable bearings, so that their position

can be changed, and so that they can be straightened when the felt is sufficiently stretched. Such rollers have long been used in the calico trade.



MINERAL LOADING.

A contributor to the *Papierfabrikant* states that so much has been said in disparagement of mineral loading in paper that he feels constrained to bring forward the arguments on the other side. The general distrust of mineral loadings depends on the admitted fact that their presence detracts from the strength of the paper. But he argues that paper fulfils a far more important place for transmission of ideas than it does for wrapping purposes, and whilst he agrees that mineral loadings ought to be excluded from wrapping papers, he contends that they have a very valuable function as constituents of writing, printing and illustration papers. For instance, formerly when rag papers were the only ones made, the addition of minerals might in a sense be regarded as a weight-giving adulteration. But nowadays, when it is necessary to impart to papers composed of the harder kinds of chemical pulps, sulphite wood and straw pulps, some of the characters of a rag paper, the use of minerals is fully justified in order to diminish their parchment-like character and the consequent harshness of the surface towards printing and writing inks. This valuable property is possessed in a high degree by the chemically prepared minerals, satinite and blanc fixe, but it is also obtainable with the natural minerals provided these be properly ground and levigated or sifted. Mineral loadings are especially helpful in the case of typewriting papers because they tone down the hardness due to the straw and Mitscherlich sulphite pulps used and permit a plastic and sharp reproduction of the type. By a proper manipulation

of the minerals the writer has been able to prepare fine papers which could with difficulty be distinguished from rag papers. The economical application of minerals is not so simple a matter as it might appear. To get the best results the machine must run slowly, with a fine meshed wire and a large number of suction boxes each drawing lightly; the back waters should be recovered and continually used over again. It is also necessary to have the pulp beaten sufficiently "wet" in order to retain the particles of clay, still care must be taken rigorously to avoid any tendency to a parchment-like effect. When it is a question of cheapness the papermaker may be called upon to decide between the addition of minerals or of mechanical pulp, and it must be borne in mind that whereas minerals must resist the action of time both as regards color and character, mechanical pulp rapidly becomes discolored and brittle.



MACHINE CLAZED PAPERS.

There is a growing demand, according to a writer in the *Papierfabrikant*, for the highest possible finish even on the cheapest grades of M.G. wrapping papers. The manufacturer consequently has to devote the closest attention to the condition of the surface of his drying cylinder and to the quality and treatment of his materials. It is impossible to preserve a high polish on a cylinder made from an inferior casting, especially when the doctor is made of too hard a metal and not kept properly clean. The cylinder then gets scored in lines and a strippy paper is the result. The writer has used the following arrangements of doctors with the most satisfactory results. The first doctor is a bronze blade of medium hardness which served to scrape off the coarser dirt. The finer crust, which is more or less burnt on and is often of a calcareous

nature, is removed by a hard-wood doctor which is covered with a fine carborundum cloth, No. 000 to No. 00000, according to the nature of the cylinder metal. A third doctor, covered with some couch-roll felt, gives a final clean up and polish. This arrangement, after working for three months on an old cylinder, gave a beautiful mirror-like surface, but it is recommended also even for new cylinders. The carborundum cloth must be selected with care, since ordinary emery paper may quite spoil the surface owing to its coarse grain. The preparation of the pulp is also an important point in obtaining a high finish. Formerly there was an impression that only soda wood pulp was suitable for giving a very high glaze, but now it is recognized that sulphite pulp properly boiled and beaten will serve equally well; mechanical pulps both white and brown are also suitable. It is a general principle that the pulp for machine-glazed wrapping papers should be beaten rather "free," but "free" stuff does not felt closely, which is not conducive to a fine surface. For this reason it is advisable to mix a certain amount of short, finely milled fibres with the long free fibres. This fine stuff may be obtained from paper shavings or finely ground mechanical pulp, and serves to fill up the spaces between the long fibres and to close the surface. The fine stuff may be mixed with the long stuff at the sand-tables where the pulp is diluted; the more the stuff is diluted the better is the felting, and the structure and finish of the paper is improved. Other points which require attention are: suitable shaking, a properly situated dandy-roll and good manipulation of the suction. The small roll which presses the paper against the cylinder should be closely adapted to the latter by running the machine empty with steam in the cylinder and a copious stream of water over the roll. If the latter be separately driven, it will be advantageous to drive it about two per cent. faster than the cylinder. Fixed

doctors are not recommended. The writer mentions a process by which it was proposed to improve the surface by the application of a mixture of starch paste and oil to the surface of the cylinder before the paper came in contact with it; but this process does not appear to have been successful.—B.



EFFICIENCY OF PRODUCTION.

For many reasons, all too well known to manufacturers, efficiency of production must be the watchword of the future. Needless waste, whether in labor, material or process, is becoming incompatible with dividends. All this means the application of the scientific method to the selection of supplies and the processes of manufacture. Certain trades have long been fortunate in having special laboratories with trained experts at their command. The development in the organization and increase in the facilities of these laboratories point to an appreciation of the value of their service, which is a healthful sign of progress in many lines of industry.

The recent incorporation of the laboratory of engineering chemistry conducted by Arthur D. Little, of Boston, Mass., is worthy of special mention as a healthful sign of progress along the lines just mentioned. Although established since 1886, and showing a satisfactory growth meantime, it was not until 1906 that the demand for the services of the laboratory forced Mr. Little to double his equipment in order to meet the requirements of his growing clientele. Since then the demand for expert opinion in many industrial lines has been so great that the incorporation of the business of the laboratory was decided on as a means of safeguarding the interests of those concerned and as an act of future preparedness for future extensions of business which will probably be necessary, judging from the record of the past.

MONTREAL LETTER.

(Special to the "Pulp and Paper Magazine.")

Montreal, November 5th, 1909.

Speaking of conditions prevailing in the paper trade, the manager of one of the large Montreal houses, said to the representative of the "Pulp and Paper Magazine":—

Trade is exceptionally active, in fact, we have seldom experienced such difficulty in keeping up with orders as we are experiencing at the present moment. The activity runs throughout all our lines. We have a very large production of paper bags—say three-quarters of a million a day—yet we are millions and millions behind in supplying our orders. The same active demand and inability to keep pace with it prevails in the case of wrapping papers and book papers, and I am actually compelled to refuse orders for delivery of many lines unless customers are prepared to take their turn. It will be weeks yet before we will be able to make delivery of many lines for which we are now taking orders. So far as I know, the other mills are experiencing much the same condition of affairs as we are.

The St. Raymond Paper Company's pulp mill is again in operation and the product is being stored at the present moment. There is an abundance of water for all purposes.

At a recent meeting of the Laurentide Paper Company, the directors decided to issue \$800,000 new stock within the next few months. It may be remembered that at the last annual general meeting, the shareholders authorized the issue of \$1,000,000 new stock as the directors might decide. The present capital of the company is \$1,600,000 common stock and \$1,200,000 preferred. The new stock will be issued at par in the ratio of one share to every two and a half, the ratio being made possible by the fact that a number of shareholders have had their preferred stock converted into common.

Sir William Van Horne presided at the meeting and his remarks were of an en-

couraging nature. He scouted the talk of depression and stated that he failed to see any signs of it whatever. From east to west there were nothing but hopeful indications. As for the west, he had already used up all his adjectives in its praise.

The market for paper and pulp seems to be very strong, at the present moment, and all the mills are busy. The mills manufacturing news are filled with orders. The Belgo-Canadian mills are busier than ever before, and the Laurentide, although running to full capacity, are having their stocks rapidly broken into. The price is said to be \$2.30 for New York and Chicago delivery.

In the matter of pulp, the market is very strong. A large sale of ground wood was made recently at \$20.50, at the mills, so it is reported, the general quotation ranging from \$20 to \$21 per ton. Sulphite pulp, delivered in Canada, is quoted at \$38 to \$42 per ton, and for delivery to United States points, at \$42 to \$44. Reports from the United States are to the effect that there has been a shortage of water again, and that this has interfered with operations along the Connecticut, Hudson, Black and Oswego Rivers, practically no mechanical pulp having been ground there for weeks past. From this it is argued that ground wood pulp will continue scarce all winter and that the importations from Canada will necessarily be large. Chemical pulp is also in better demand and the market is firm all round.

From advices received by the "Pulp and Paper Magazine," it would appear that the reported purchase of timber limits on Vancouver Island, by Mr. E. B. Kurtz, president of the American Finance & Securities Co., of New York, is authentic. So far as can be learned, the quantity purchased was in the vicinity of 54,000

acres, the purchasers paying the Canadian Pacific Company, the former owners, somewhere in the vicinity of \$1,500,000. The estimates of the timber on the area acquired, place it at five billion feet, mainly fir, with 10 per cent. of cedar, hemlock and spruce. The trees are 40 inches in diameter, on an average, and free from branches to a height of about 175 feet. The area encircles Cowichan Lake, and is not above 1,500 feet above sea level. The conditions are exceptionally unfavorable for fire. The C.P.R. in making the sale, compels the prompt operation of the limits, the company, on its part, agreeing to build a railway from the lake to tide-water during 1910. Mr. Kurtz is credited with the statement that the purchasers intend to erect a mill at tide-water with a capacity of 100,000,000 feet per annum and that, later on, they would spend half a million dollars on a pulp mill. Other methods of utilizing all the waste products of the lumbering and milling operations are being investigated.

The Quebec Government, by an Order-in-Council signed last month, disposed of the timber-cutting rights upon 508 square miles of Crown Lands along the line of the Transcontinental Railway, the awards being made to the highest bidders. In all cases, the timber taken from the lands, must be manufactured in Canada. All the lots are subject to the annual ground rent of \$5 per square mile. Offers were asked from the tenderers as to how much in excess they would pay—first, per thousand feet board measure in addition to \$3 for spruce, balsam, cedar, white birch and poplar sawlogs; second, per cubic foot in addition to \$5 for square and waney timber; and, third, per railway tie, in addition to five cents.

The successful tenderers, and the prices paid by them, are as follows:—

T. J. McManus, 16 miles, excess of \$2 for spruce, \$3 for pine, 2c. per ft. extra for waney and 5c. additional for ties; Thos. D Malone, Three Rivers, for 45 miles,

pays \$3, \$1, 5c. and 5c., respectively, McDonald and O'Brien's basis being slightly different.

About the middle of October, a deputation of lumbermen waited upon Premier Gouin, at Quebec, and fully discussed the questions of stumpage dues and their proposed increase, and the Premier was asked to take fully into consideration the question of trade in his coming decisions. Those composing the delegation were Messrs. J. R. Booth, W. Price, M.P. Wm. Power, ex-M.P.P., Foy, McLean, Gerald Power, S. Grogan, Col. B. A. Scott, Senator W. C. Edwards, Hon. Geo. Bryson, and others.

In an address before the Canadian Club, of Montreal, on Friday of this week, Lord Northcliffe, owner of a large chain of newspapers, as well as of extensive timber limits and pulp and paper mills in Newfoundland, condemned the policy which Canada has been pursuing with respect to her timber resources. Said he:—"You have here, in the Province of Quebec, raw material which, if the Dominion Government would only say the word, would make this the paper making nation of the world. But never before have I seen such a reckless parting of raw material to a friendly rival. . . . You should not allow one tree to be cut without seeing that two are grown. . . . You have in your possession something that all the efforts of scientists and of inventors have not been able to replace—the spruce tree—and you have in your possession, also, vast waterpowers, a combination which should make Quebec and other parts of the east as rich as the west, aye, and with a trade that is not affected by seasons or climates. . . . What wheat is to the West, spruce trees are to the East; yet you are told that these vast forests of yours are to be placed at the mercy of the American paper maker in order that he may fill with your raw material, markets that are the natural right of Canada. . . . Our American friends by reckless cutting have practically limited their available

spruce trees to certain portions of New York State, Maine, New Hampshire, Vermont and a few small quantities elsewhere. They may deny this, they may tell you that they are trying to grab your forests in order to conserve their own, but the facts are as I have stated, and the bluff they are putting forth, therefore, more than usually ridiculous. You are selling to them from these fair forests of yours, pulp logs at less than \$6 per cord, which they speedily convert into paper worth \$40 per cord. If you make this paper yourselves, you establish active, prosperous towns, such as I am proud to have erected in Newfoundland. I feel that this question is one of the most important facing the Dominion Government, and if they are wise they will so arrange the tariff that the manufacture of wood products will take place in Canada." The speaker went on to say that the establishment of paper mills on this side of the border would more than offset any temporary losses which the small farmer might at first suffer. At present, the Dominion Government was simply allowing an ungenerous rival to deplete Canada's most valuable heritage. It was the most important birthright Canadians had, and he wanted to impress upon those present that they should back up the Provincial Government and put a stop to this foreign depredation. In addition, he said that Canada's logging methods were wasteful and obsolete and that little or no attention was paid to forest preservation and to re-forestation. He advised the adoption of the splendid forest laws of Germany and Sweden, where the forests were even now on the increase. But the tariff question was the first to be dealt with. The United States was making a desperate effort to get Canada's pulp, and Canadians were doing a great injury to the future welfare of their country by allowing the United States to deplete their forests. In conclusion he said that he wept over the stupendous waste taking place in our forests and the fact that we allowed our priceless heritage to be destroyed by a

foreign country. He said that he had guarded his own interests by establishing pulp mills in Newfoundland, and that if the Americans wished to safeguard their future interests let them come over to Canada and establish paper mills.—an act which Canada had the power to compel.



THE RECOVERY OF CAUSTIC SODA.

A new method of recovering the caustic soda employed in mercerizing has, it is stated, attracted considerable attention.

It is announced that one of the Alsatian printing companies has reduced the cost of soda to one-sixth of its former amount by a simple device. The wash liquors are filtered through coke; the weak lye is then run into a boiler as feed-water and concentrated. The steam obtained contains an appreciable amount of alkali, and is unsuitable for engine driving, but it may be used for heating in cases where the alkalinity is not detrimental, and in the particular works in question it is used for boiling the bleaching keirs. The boiler is said to differ very little from the ordinary small type of high-pressure boiler; but all brass and copper fittings are replaced by iron, and all outlet pipes are of extra wide bore. It is stated that the lye is easily concentrated to about 60 degrees, any carbonate of soda formed being afterwards reconverted to caustic soda by the addition of lime. The coal consumption is asserted to be very little more than would be required for ordinary steam raising. Apparently few difficulties have been experienced in practical working; and if so, this would appear a simple and economical process, as steam would be required in any case, and there is really no extra fuel cost for evaporation.

CANADIAN PULP AND PAPER TRADE.

Figures recently issued by the Department of Trade and Commerce show that the imports and exports of paper

into and from Canada from the United Kingdom and United States were as follows:—

Canadian Imports from United Kingdom.

	1908.		1909.	
	Quantity.	Value.	Quantity.	Value.
Paper and manufactures of—				
Hangings or wall paper, including borders, dut., rolls	173,182	\$32,724	207,371	\$45,051
Pads, not printed, paper maché ware N.O.P., papeteries and mfrs. of paper, N.O.P., dut. ....	.....	247,847	.....	208,188
Printing paper, dut., pounds.....	3,405,267	190,776	2,856,333	178,264
Ruled, border and coated papers and boxed papers, dut.....	.....	27,019	.....	21,954
All other	{ Dut....	.....	{ Dut....	.....
		425,256		385,333
	{ Free....	.....	{ Free....	.....
		1,045		1,108
Totals, paper and mfrs. of	{ Dut....	.....	{ Dut....	.....
		\$932,622		\$838,790
	{ Free....	.....	{ Free....	.....
		1,045		1,108

Canadian Exports to United Kingdom.

	1908.		1909.	
	Quantity.	Value.	Quantity.	Value.
Paper—				
Felt, rolls	5,060	\$21,806	1,716	\$5,894
Printing .....	.....	922,373	.....	1,364,866
Other, N.E.S. ....	.....	367,611	.....	237,194
Wall paper, rolls	1,512	250	1,104	370
Totals, paper .....	.....	\$1,312,139	.....	\$1,608,324

Imports from United States.

	1908.		1909.	
	Quantity.	Value.	Quantity.	Value.
Paper and manufactures of—				
Albumenized and other papers and films chemically prepared for photographer's use, dut.....	.....	\$83,889	.....	\$75,305
Playing cards, dut., packs.....	375,928	35,892	332,278	27,705
Card board, not pasted or coated, dut. ....	.....	21,954	.....	16,289
Envelopes, dut., 1,000	56,052	50,289	48,108	43,847
Felt board, dut.....	.....	66,223	.....	39,738
Hangings or wall paper, including borders, dut., rolls	1,596,751	163,714	1,844,483	154,819
Pads, not printed, and papier maché ware, N.O.P., dut.....	.....	6,928	.....	3,871
Papeteries and all manufactures of paper, N.O.P., dut.....	.....	813,522	.....	741,538
Printing paper, dut., pounds.....	4,339,414	284,184	3,910,913	105,580
Ruled and bordered and coated and boxed papers, dut.....	.....	80,288	.....	61,112

Wrapping, dut., pounds	1,333,073	47,164	1,751,859	52,465
All other	{ Dut....	1,097,101	1,030,920	
		Free....	45,165	55,773
Totals, paper and mfrs. of { Dut....	\$2,751,148	\$2,443,189		
	Free....	45,165	55,773	
Rags of cotton, linen, jute and hemp, woolen, paper waste or clippings, etc., free	476,932	370,288		

Exports to United States.

	1908.		1909.	
	Quantity.	Value.	Quantity.	Value.
Paper—	112,363	\$102,435	38,803	\$11,909
Felt, rolls	792,608	914,657		
Printing	594,695	24,265	85	5
Wrapping, pounds	68,631	62,145		
Other, N.E.S.	21,669	7,341	7,930	1,440
Wall paper, rolls				
Totals, paper		\$995,280		\$990,156
	1908.		1909.	
	Quantity.	Value.	Quantity.	Value.
Wood pulp—	769,514	\$1,364,030	670,404	\$1,223,702
Chemically prepared, cwt.	3,033,885	2,181,500	2,408,629	1,841,177
Mechanically, cwt.		197,300		211,891
Rags				

German imports of paper fell off greatly, as shown in the following figures:—

	1908.		1909.	
	Quantity.	Value.	Quantity.	Value.
Paper and manufactures of.. { Dut....	108,448	\$75,628		
	Free....	5,111	11,293	

Rags valued at \$120,957 were imported from Great Britain in 1909 as compared with \$238,052 in 1908.
From France, Canada purchased paper

and manufactures thereof to the value of \$43,605, as compared with \$32,681 in 1908. The export figures were: Wood pulp, in 1908, \$5,497; in 1909, \$83,590. This development is worthy of note.



A MACHINERY OFFER.

The attention of our readers is specially drawn to the advertisement on page 49, for the sale of pulp mill machinery by the Marseilles Land & Water Power Company of Marseilles, Illinois. It comprises the entire equipment of the Boyce Pulp Mill at that place, and as it is described as a bargain, some of our pulp mills may find amongst it something they can buy to good advantage. Among the machinery advertised are

several Olin Scott New England grinders, Empire stones, hydraulic pressure tanks, centrifugal and flat pulp screens, machine frames, wood-working machines, power pumps, wet machines, shaft hangers, stone sharpener and many other articles for particulars of which we would refer readers to the advertisement itself. The waterpower at the above point is being converted into electrically developed power, so far as present leases permit. The dam is across the Illinois River, and has a practically continuous supply of

water, as all the waters of the Sanitary District of Chicago supplied from Lake Michigan for the drainage of the city pass this dam. It is upon the route of the important lakes-to-gulf deep water way project.



RAG AND PAPER STOCK MARKET.

There has been a marked improvement in the trade in rag and paper stock during the past week. This applies more particularly to the classes of stock required for the cheaper grades of paper. A large amount of building is now going on and dealers in building papers are experiencing a very active demand for all lines for use in this connection. It should be remembered that one of the strong influences in this increasing demand is the fact that the grades of lumber used in building are gradually becoming less and less desirable, the result being that more and more building paper has to be used in order to make the buildings, as far as possible, wind and cold proof. Roofing stock is also in good demand and prices are firm, but, owing to the fact that there have been very considerable stocks on hand and that these have to be disposed of, no advances of consequence have yet taken place. Wood pulp papers are in good demand but the supply is liberal and, in any case, they have practically no bearing on the paper stock trade. The better classes of waste material, such as new cuttings, mostly find their way to the American writing paper mills, and while the market is firm for these there has not been an advance, relatively, as compared with the cheaper grades of stock. On the whole, the market is exceedingly satisfactory, at the moment, the turn-over, from all accounts, being exceptionally large, especially in the lower classes of stock.

During the month, although the entire market has been quite firm, there have been very few actual advances. In the case of common waste, however, the price has advanced sharply, quotations being now 35c. to 45c. per 100 lbs., as

compared with 25c. to 35c. last month. Following are the quotations:—

Shirt Cuttings—		Per 100 lbs.
White		\$4 50 to \$5 50
Unbleached Cottons ..		4 25 to 4 75
Light Print Cuttings..		3 00 to 3 50
Shoe Rag Cuttings—		
Bleached		4 00 to 4 50
Mixed white		3 00 to 3 50
Light print		2 75 to 3 00
Overall Cuttings—		
Blue		3 25 to 3 50
Brown		2 00 to 2 50
Paper Shavings—		
Hard white		2 00 to 2 25
Soft No. 1 white		1 50 to 1 75
Soft No. 2 white		1 25 to 1 30
Mixed shavings		0 55 to 0 60
Ledger stock		1 00 to 1 25
Printed book		0 90 to 1 00
Common waste		0 35 to 0 45
Roofing Stock—		
No. 1 satinettes		0 75 to 0 80
No. 2 satinettes		0 45 to 0 50
Sundries—		
Old bagging		0 60 to 0 65
Manilla rope		2 00 to 2 25
Mixed cotton rags		1 00 to 1 25

(For Montreal Markets see Montreal Letter.)



—According to a Government report wages during the first half of the present year were as a rule stationary in Canada. Wages at the Hull pulp and paper mill were as follows:—

Pulp Mill	Per day
Foremen	\$4.00
Sub-foremen	2.00
Barkers	1.65
Screen men	1.46 ² / ₃
Grinders	1.60
Barkers' helpers	1.55 5 ¹ / ₆
Greasers	1.65
Paper Mill	Per day
Boss machine tenders	\$4.50
Machine tenders	3.83
Bag tenders	2.47 1 ¹ / ₂
Third hand	1.92 1 ¹ / ₂
Fourth hand	1.46 ² / ₃
Greasers	1.65
Broke hustlers	1.65

Paper engineer	2.20
Paper man	1.46 $\frac{2}{3}$
Assistant engineer	1.65
BoSS finisher	1.92 $\frac{1}{2}$
Finishers	1.48 $\frac{1}{2}$
Laborers	1.65
Common do.	1.37 $\frac{1}{2}$ to 1.50



UNITED STATES PULP DECISION.

As a consequence of the widely-spread misapprehension concerning the duties payable on ground wood pulp imported from Canada the following decision by the United States Treasury Department in the form of instructions to the Collector of Customs at Detroit has been received with great interest, and is looked upon as the latest word on the subject:—

“You state that, following the Department’s instructions of August 26th last, you are collecting duty at the rate of one-twelfth of one cent per pound under paragraph 406 of the Tariff Act of August 5th, 1909, upon mechanically ground wood pulp produced from pulp wood cut in the Province of Ontario, whether the wood was cut on Crown lands or private lands in said Province.

“It was not intended, in the decision referred to, to direct the assessment of duty upon mechanically ground wood pulp produced from pulp wood cut on private lands in Ontario, but as it appears that the decision is not clearly understood, the Department deems it advisable more fully to state its position in regard to the assessment of duty upon wood pulp and printing paper imported from the Dominion of Canada.

“As the records on file in the Department do not show that any Provinces in the Dominion of Canada, except the Provinces of Quebec and Ontario, impose an export duty on or prohibit the exportation of pulp-wood, wood pulp, or printing paper, all mechanically ground wood pulp imported into this country from any Province in the Dominion of Canada, except the two mentioned above, should be admitted free of duty until otherwise directed.

“As the Province of Quebec imposes an export duty of 25 cents per cord on pulp-wood cut on Crown lands, mechanically ground wood pulp produced from pulp-wood cut on such lands should be assessed under the provisions of paragraph 406 of the last Tariff Act, with the regular duty of one-twelfth of one cent per pound and a countervailing duty equal to the export tax, viz., 25 cents per cord. The equivalent of a cord of pulp-wood is the short ton of 2,000 pounds of wood pulp, air dry weight.

“As the Province of Ontario prohibits the exportation of pulp-wood cut on Crown lands, mechanically ground wood pulp produced from pulp-wood cut on such lands should be assessed with the regular duty under said paragraph 406 at the rate of one-twelfth of one cent per pound. Mechanically ground wood pulp produced from pulp-wood cut on private lands in the Provinces of Quebec and Ontario should be admitted free of duty.

“Chemical wood pulp or sulphite is subject to the regular duty provided by paragraph 406, and chemical wood pulp or sulphite produced from pulp-wood cut on Crown lands in the Province of Quebec, in addition to the regular duty, is subject to the countervailing duty provided by the said paragraph. The equivalent of a cord of chemical wood pulp or sulphite is 1,400 pounds, air dry weight.

“Referring to the instructions in the Department’s decision in regard to the assessment of the 35 cents countervailing duty upon each ton of printing paper manufactured from pulp-wood cut on Crown lands in the Province of Quebec, you are advised that the ton referred to is the short ton of 2,000 pounds.”



In Batiscan and other Quebec points, heavy rains have swollen the rivers and streams to such an extent that hundreds of cords of pulpwood have been lost through the bursting of booms.

PULPWOOD ON THE T.N.O. RAILWAY.

Chairman Englehart, of the Temiskaming & Northern Ontario Railway Commission, speaking of the advantages possessed by settlers in Northern Ontario, said that the farms possessed an abundance of pulp-wood as well as wood of various other kinds. The pulp-wood, if husbanded as it should be, the settler not clearing more than five or ten acres per year, provides a profitable winter occupation. "There is no need," declared the chairman, "to sit down like they do in the West in the winter to await the coming of the sun again. There is no opportunity for rusting in the front garden of Ontario to those who desire to be busy. There is the summer season to till and garner and market. There is the winter for work in clearing the pulp-wood and wood for the mills. Then again, the mines and minerals furnish work to those who desire to do it at very good pay. There is excellent opportunity for marketing the pulp-wood. The railway says to the settler and farmer if he has ten or more cords—about the average per acre—placed alongside the railway track the railwaymen will place a car for loading at the point and if necessary will assist in loading or, if required, in the endeavor to find a market. This, however, is not called for, for buyers are always ready to contract up and down the line, the present price being \$3.50 and upwards per cord along the track."



INTERNATIONAL PAPER COMPANY MEETING.

Reports presented at the annual general meeting of the International Paper Company, at Corinth, N.Y., the 27th October, made a poor showing for the year's business, a feature which is attributed to the strike in the latter part of the year 1908 and to the curtailment of operations consequent on low water between October 1st, 1908 and February

1909. Since then the mills have been running well and the earnings have improved. The gross income for the fiscal year was \$18,238,476; cost of raw material and of manufacture and selling \$16,456,379; taxes and bond interest \$1,183,995. Earnings in excess of all expenditures including dividends were \$149,967.



STRUCTURAL FEATURES OF BLEACH ROOM.

As every bleaching agent is subject to more or less decomposition through the influences of heat and light, the structural formation of the rooms in which such agents are prepared should be in all cases of a nature which would counteract those influences—apart from changes of season and atmospheric variations. Where underground rooms are available their use is recommended; but when such is not the case, the choice, combination and treatment of the materials employed should be in conformity with certain definite principles.

The walls of such rooms should consist of bad conductors of heat. Should brick or quarry stone, from local circumstances, be necessarily used, the walls should be lined with pumice stone or slag stone, laid flat, warm slacked lime or lime mortar being used, as being a much worse conductor of heat than cement mortar. The mortar used in the ceiling should consist of lime and slag, or lime and pumice, these combinations producing a substance almost impervious to heat, and which, owing to its low specific gravity, does not appreciably burden the framework of the roof. The latter should not be covered with metal, as it easily conducts heat and is much more subject to destruction by sulphurous acid and smoke gases than is the case with roofing tiles or slate. The rafters should be insulated with slag or pumice, or at least the penetration of heat through the roofing should be prevented by a lining of roofing pasteboard.

In order to render the flooring entirely waterproof, cement paint should be applied, it being also saturated with soluble asphalt and emulsion of rosin or ozokerite, or with the admixture of ceresite or an emulsion of bitumen. Above the flooring the wall surfaces to the height of 8 to 12 inches should be treated in the same way in order to prevent the upward absorption of any damp from the earth.

The interior walls of such rooms should be three times well washed with warm slacked milk of lime, as it facilitates the hardening of the lime mortar, preventing, moreover, subsequent chipping and crumbling. Other paints are said to be less desirable than milk of lime paint, being more expensive, and not closing the pores of the plaster so uniformly and closely.

Owing to the unfavorable effects upon bleaching agents of the light from incandescent lamps (and still more from arc lamps), it is considered advisable not to be too sparing in the provisions for the admission of natural light. The various collecting and mixing receivers should be of cement concrete or iron concrete, while the communications leading to and from the receivers should consist of cement concrete pipes.

When the rooms are only used for working with bleaching agents partially different construction and treatment are required, the effects being promoted which tend to the disintegration of those compounds. The enclosing walls should be constructed in the manner already described, this principle, while apparently opposed to the object in view, being necessitated by the fact that in central and northern Europe low temperatures prevail during most of the time, which necessitate the condensation of the heat. Hence the walls should be of substances which are bad conductors of heat, at the same time so arranged as to provide a large extent of surface for the admission of light.

In the last named connection the advantages of the openings for light being protected by glass blocks in preference

to the ordinary system of glazing are strongly urged. Among the reasons adduced are the avoiding of the rusting of the metal parts of the window frames and of the frost on the panes; other inconveniences of the ordinary plan consisting in the wet panes becoming dirty and the condensed moisture gathering on the sills. This moisture being also likely, when collected on the walls, to injuriously affect the metal heating pipes which are in close proximity, it is suggested to avoid as far as possible the use of the latter. When they have to be used they should be protected by cement concrete 2 inches in thickness. Through arrangements for the unrestricted lateral exit of the heated layers of air, the moistening, the covering with dust and the corrosion of the metal heating pipes are prevented. The cement concrete work should be so arranged that the pipes are accessible.

As there is seldom enough light obtainable through lateral windows with ordinary glazing to serve the central parts of wide rooms, prismatic glass or glass blocks should be inserted in certain parts of the roof, one advantage of this arrangement being that the use of metal parts is unnecessary.

The pipes for conveying pulp, as well as those for warm water, should be in cement concrete, with as few metal parts as possible. Similar principles should be applied to the construction of receiving appliances for bleaching agents and water, more particularly as the former are usually placed near the spot where the bleaching process is conducted. If the cement concrete work is skillfully and conscientiously executed, even the hollander tubs can be thus treated, instead of being lined with glass or glazed slabs. In the preparation of the cement concrete the sand should be sharp and free from clay or lime, the gravel or other components being as free as possible from lime. Calcareous admixtures materially diminish resistance to the products of decomposition of the bleaching agents as well as to the acids

used to hasten the process of bleaching. After a careful mixing the subsequent stamping should produce a uniform surface without any visible pores.

Interior surfaces of receivers and other vessels treated in this way are thoroughly close and uniform, offering the necessary resistance to the influences associated with the process of bleaching. For obtaining thorough impermeability in the visible external layer, the latter, after it has well set, should be delixivated with a water bath as long as the latter shows any alkaline reaction. The external layer is then allowed to dry naturally, and saturated with ozokerite emulsion or soluble asphalt.

The lateral portions of the washing cylinders can be constructed in the same way as the walls of the hollanders, with the aid of metallic inserted parts, suitably united with the metal component parts of the cylinders themselves, with the result of lower cost and diminished wear.

As lubricating oil gradually leads to the decomposition of inferior cement, the quality of the latter used between the various floors of the building should be of a high order, the components being as free as possible from lime. The pulp collecting appliances being often placed beneath the hollander rooms, the latter should never display important variations of temperature, these changes leading to the formation of drops of moisture underneath. Uniformity of temperature in both locations is therefore necessary, otherwise the lower portion should be protected by a bad conductor of heat. Ventilation of the hollander room is best effected by a sloping roof, while the rooms surrounding the hollander room should not communicate with it by lateral openings, the latter facilitating the diffusion of the products of decomposition of the bleaching agents.—(Translated by "Paper Trade Journal," from "Papier Fabrikant.")



Backus & Brooks, owners of the Fort Frances, Ont., pulp mill, have just given a contract for 30,000 cords of spruce.

RECENT CANADIAN PATENTS.

The following is a description of patents issued by the Canadian Patent Office during the last month relating to pulp and paper, and furnished by Fetherstonhaugh & Co., 5 Elgin Street, Ottawa, Ont. Russel S. Smart, resident:—

121,033.—D. Gestetner, Tottenham Hale, Middlesex, Eng.—Preparation and treatment of stencil paper. To render paper impervious to the action of ink stencil in printing processes this invention employs a composition of Java paraffin wax and aniseed oil.

121,102.—A. Elliott, B. V. Bingham, Seattle, Wash.—Logging devices. The above invention relates to a device for facilitating the handling of wire rope from the drums of a logging engine. The invention consists essentially of a gripping wheel, which will hold the cable when a pressure is applied thereby on the wheel, and which will also have the effect of pulling the cable, and at the same time obviate the necessity of wrapping the cable completely round the wheel. An anti-slipping device for cable-handling sheaves is also employed which will freely release the cable when the pressure from the cable is released.

121,039.—P. M. Hamlin, Pittston, Pa.—Processes and apparatus for making mixed fibre and the product of the same.



NEW FIBRES.

A correspondent of the Pulp and Paper Magazine who has traversed all parts of Northern Ontario, and knows its resources like a book, brings to our attention some neglected materials which might be made good use of for obtaining fibre.

Cedar bark, he says, has a very strong fibre, and is almost imperishable by fire. If it could be manipulated without losing its resinous tenacity it would be ideal for preserving furs and cloth-

ing in summer. It will be rather expensive to collect, being a by-product of cedar poles, ties and posts. Cost of baling and collecting will be all, as it is a nuisance for many years on earth or in water. Another strong fibre would be the rushes of our inland lakes and bays—open rivers could only be handled to advantage with light skow and small mower and binder. Small native meadow grasses are almost as strong as the Esparto grass of Spain. Some of them would be almost as good as manila for ropes and cordage. He suggests that an experimental pulping plant to test new fibres might well be worthy of consideration.



INDIGO BLUE SURFACE COLORING.

The indigo carmine used for the production of indigo blue surface colored papers is best obtained from a solution of indigo by precipitation with common salt, says "Paper Making." The vessel in which the precipitation takes place does not require to be large, there being no effervescence produced by this method of precipitation, as in the older method of precipitating the carmine with soda. The precipitate subsides, moreover, in an hour or so, while a day at least is required when soda is used. The character of the two precipitates is also different, that obtained by the common salt having greater covering power than the other. The carmine obtained by precipitation with soda is always pasty, and is apt to produce dark streaks on the surface of the paper.

Indigo carmine is produced as follows: Two and a half parts of indigo are first ground to a fine powder by passing it several times through a grinding mill, and then spread on a thick sheet of unsized paper in a layer of about three-eighths of an inch deep, and placed in a warm, dry room for three or four days. A strong earthenware jar is then tared on a balance,

and, if indigo of medium quality is taken, $11\frac{1}{4}$ parts of fuming sulphuric acid accurately weighed off. It is usually reckoned that one part of good Bengal or Java indigo requires five parts of fuming acid, but for other kinds four to four and a half parts. The mixing must take place in an open space, so that the vapor evolved can escape. The dry pulverized indigo is added to the acid in small quantities at a time, while continually stirring with a glass rod to prevent overheating. When all the dry powder has been added, the vessel is set aside and stirred from time to time. After three or four days the indigo will be dissolved, which can be ascertained by withdrawing the glass rod and examining it for any particles of indigo powder. If small particles are noticed adhering to it, too little sulphuric acid has been originally used, and it is necessary to add a further quantity of one-quarter or one-half part, stirring well after the addition, and allowing to stand three or four days longer. The dissolved indigo is then slowly poured into twenty parts of cold soft water, contained in a wooden cask, stirred gently and allowed to stand twenty-four hours. The fluid is then filtered through a linen cloth filter into a second wooden vat, provided with a running-off tap fitted in at the bottom. The greenish black residue remaining upon the filter is preserved and sold for use in the manufacture of felt hats.

The filtered indigo solution is now precipitated. The vat in which this takes place is made of wood, and should be of large capacity (forty gallons capacity for five and one-half pounds of indigo.), and is provided with taps in the side for running off the clear liquor, etc. It is placed two feet from the ground upon a wooden frame. The filtered indigo solution is poured into this vessel, and there is then gradually added a solution of common salt containing twenty-three parts NaCl dissolved in forty parts of water. The indigo carmine separates as a very

fine precipitate, which remains suspended in the fluid. The whole must, therefore, be filtered and the precipitate washed. The apparatus for this purpose consists of two boxes resting one upon another, the bottom one being $4\frac{1}{2}$ feet long by $2\frac{1}{2}$ feet wide, and 1 foot deep; the upper one is a little smaller, and is placed on cross spars directly over the larger one. Small holes are drilled in the bottom of the upper box to allow the liquid to escape. It is then lined with filtering medium, which consists of a double layer of good unbleached linen, previously steeped in a solution of crystal soda. The filter bag, consisting also of linen, is placed in this. It is also steeped in soda solution before being used.

A small quantity of fluid containing the precipitated carmine is first poured upon the filter to fill the pores of the linen filter cloth. The fluid containing a little of the precipitate which first passes through alone is returned to the bulk of the liquid in the large vessel. After a short time, however, a clear, dirty yellowish green liquid passes through alone, which is thrown away, the indigo carmine remaining behind upon the filter.

After the whole of the liquor has passed through the precipitate is washed twice with cold, soft water, the first wash water being allowed to pass through before the second is added. The first washings are usually dirty, and are thrown away; but the second are strongly colored, and may be used for a variety of purposes. After the second washing the indigo carmine is ready. It forms a thick, brown-looking mass, and is removed with a wooden spatula, and preserved in boxes for further use. Two and a half parts indigo yield from thirty to thirty-five parts of paste.

In this state it is too concentrated for direct use in the manufacture of surface colored papers, and, therefore, it is dissolved in eighty parts of warm water (60° C.) in a wooden vat by con-

tinual stirring for two hours. The carmine should dissolve completely. The deep blue fluid is now tested to see whether it is free from acid, the presence of which causes the color to pass through the paper, coloring it an intense yellowish green. In all surface colored papers the color should not penetrate the texture of the sheet. Two beaker glasses are half filled with the indigo carmine solution and a glass rod placed in each. Four or five drops of a strong aqueous solution of crystal soda (50 per cent.) is then added to one of the glasses and the mixture stirred. If only a trace of acid is present the fluid becomes much thicker than that in the other glass. When such is the case, one part of crystal soda dissolved in five parts of hot water is slowly added to the indigo carmine solution in the large vessel.

Indigo carmine prepared in the above way is excellently adapted for producing blue surface colored papers, either by machine or hand. Usually the paper receives only one coat on each side; the finest kinds are, however, coated twice, well-sized papers free from wood being used. Weight about 25 pounds double crown. Six and a half reams of 48c sheets, each $13\frac{1}{2}$ by 7 inches, can be covered with $5\frac{1}{2}$ pounds of commercial indigo.

Colors derived from aniline are easily affected by light and atmospheric influences, and are consequently not so valuable as dyes which are more permanent. Those formed by the combination of alizarine with metallic salts are of the latter nature, and resist the action of light. Alizarine is the dye extracted from madder roots. These roots contain a substance called ruberythric acid, which, in the presence of water and a peculiar ferment also contained in the roots, is resolved into alizarine and glucose. The great bulk of the alizarine used in commerce now, however, is obtained from anthracine or derivatives of anthracine. Alizarine, when dissolved in alkaline solutions and precipitated with

calcium or barium salts, forms purple precipitates; with aluminium and tin salts, red precipitates or madder lakes, as they are called; and with iron salts, black violet precipitates. These insoluble, colored precipitates are extensively used in the arts for dyeing, and they can also be used as a base for lithographic inks.

The following method of preparing rose lake from alizarine for surface ground papers is that generally followed by German and Austrian manufacturers who prepare their own colors.

The following ingredients are mixed together in the vessel in which the lake is prepared, viz.: Five parts of a solution of phosphate of soda (one part of salt to twenty parts of water), two parts of a solution of carbonate of soda (one in ten), and one part of Turkey red oil (one oil to ten of water), together with fifty parts of water. After these are well mixed together, one part of a 10 per cent. solution of stannate of soda is added. The alizarine is prepared in a separate vessel by mixing five parts of the dye with fifty parts of water and adding thereto one and one-half parts of a 5 per cent. solution of potash or ammonia alum, which must be free from iron. This latter mixture is then gradually poured into the vessel containing the phosphate of soda, soda, Turkey red oil, and stannate of soda, with constant stirring. The alum acting upon the carbonate of soda causes violent effervescence, and, therefore, the vessel in which the precipitation of the lake takes place should be of large capacity. When the effervescence has subsided the mixture is gently boiled for three hours. The colored lake is then poured upon a filter and washed, first with a hot solution of carbonate of soda containing 2 per cent. of the salt, and finally with cold water. The washing with the soda solution is necessary to get rid of the Turkey red oil, the presence of which in the lake would interfere with its working properties. The colored lake prepared as above is mixed with blanc fixe and a solution of glue before use. In this

form it is carefully distributed over the surface of the paper in the usual way with brushes by specially designed machinery. Its covering properties and shade depend upon the mode of preparing it, and if ordinary care be exercised it fulfils all the requirements of the paper-maker in producing surface colored papers. The rose color can be altered in shade by an addition of other colors.



MANUFACTURE OF PASTING PAPER AND BOARDS.

The substitution of wood pulp for the rags which were formerly used for the preparation of fine pasting papers has involved suitable alterations in the methods of manufacture. In the days when pasteboards were made only from rag papers, and pasted by hand, the trouble caused by curling and cockling was comparatively rare. It is desirable to have large Hollanders of 5 to 6 cwt. capacity, but they should be so constructed that the circulation does not suffer when they are furnished with 10 or 15 per cent. more stuff. On the paper machine the greatest care must be taken to ensure that the paper is of uniform substance across the web. The drying arrangements should be on a very liberal scale, in order that the paper may be dried slowly; but, still, it should arrive somewhat moist at the last drying cylinder, which in many mills is 10 or 12 feet in diameter and only moderately heated. The paper must be evenly dried, but over-dried paper is as bad for pasting as too moist paper. Paper which is too moist cockles on the pasting machine, while paper which is too dry makes creases. In both cases the reels run out of the straight and do not take up the paste evenly, so that some places are too thinly pasted and do not stick properly. For the same reason the reels must be very tightly and evenly rolled, so that the paper runs off smoothly. Uneven application of the paste causes uneven drying of the

boards, and the damp patches cause waviness. The board should leave the pasting machine absolutely dry, and should then pass to the damping machine. If it has been thoroughly dried, it will not curl; but if only imperfectly dried in parts, it will become wavy. If the reels of paper have not been re-reeled on a special machine, they should be allowed to mature for a considerable time before pasting. Badly rolled reels become flattened if stacked, and the jerkiness thus caused on unreeling at the pasting machine is a sure source of uneven pasting. With a badly rolled reel the machine tender can do nothing; the webs run out of the straight and the drying cylinders become fouled with paste from the edges of the paper. The pasted and damped boards should be allowed to remain for at least twelve hours before being pressed, in order that the moisture may have time to distribute itself; this is not the case when the boards are subjected to heavy pressure immediately after damping. The boards should be sorted some time before glazing in a cool room with an atmosphere suited to the moisture of the boards, protected from draughts and heat, the temperature being kept as constant as possible, otherwise the edges will become wavy, creases will be formed, and the calender bowls spoilt. After finishing, the boards are very sensitive to unsuitable atmospheric conditions of storage, and are especially liable to curl if allowed to lie too long in the hot printing rooms.



MAKING WRITING PAPER TRANS-PARENT.

In a suitably large enamel vessel place fifty parts of dammar rosin (purchased in large, clear pieces and pulverized), eighty parts of colophony rosin (also in pieces which have been pulverized), twenty-five parts of best camphor, five parts of golden yellow Venetian turpen-

tine. The vessel must be substantially larger than the volume of the materials, so that when they are brought to a fluid state it will be only half filled. It is heated on a water bath until the contents are melted, but taking care that they do not catch fire. Should they do so the lid must be quickly placed on the vessel so as to put out the flame. When the solution is ready the paper is coated on one side with a soft brush and laid out horizontally on frames to dry. Should the paper not be sufficiently

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WOOD PULP AGENCY.—Advertisers, who possess extensive storage accommodation, with Railway Siding, on the North-east coast of England, and in established connection with Paper Mills, are desirous of taking an agency for the sale of Wood Pulp. Terms, etc., in strict confidence, by letter in first instance, to Box 3, Pulp & Paper Magazine.

transparent after this treatment it should be coated again more strongly with the solution, and when needful even a third time, until a uniform transparency is attained. A second recipe consists of ten parts paraffin, twenty parts Canada balsam, five parts camphor, and 153 parts rectified spirit. With this formula it is necessary to be careful that the solution does not become dirty, and some care is needful in handling it, as the turpentine is very inflammable. The vessel should be kept well closed, because through evaporation of the turpentine the varnish becomes too thick. In conclusion, it should be mentioned that oily or fatty masses of paper after a short time give off a rancid smell, which does not occur with paper treated with resinous solutions.



CONTROLLING THE WORK OF THE DANDY.

To properly control the watermark produced on paper by the dandy roll, the stuff must be exceptionally uniform in every quality. The raw material and the beating of it should receive the closest possible attention, and when it has been worked so as to give the best possible watermark, it is simply a case of keeping it there in order to keep the mark at all times under control of the machineman. This refers to simply watermarking the paper, and applies only to papers which do not require certain spaces between the watermarks. When watermarked sheets are cut to certain sizes the dandy used, says the "Paper Trade Journal," is made $\frac{1}{2}$ -in. less in circumference and $\frac{3}{4}$ -in. more in breadth between each name to allow for shrinkage of sheet. Sometimes dandy rolls are required to cut above their given size; for instance, a sheet 17 ins. by 27 ins. is to be made with the foolscap roll, which cuts 13 $\frac{3}{4}$ ins. by 16 $\frac{1}{2}$ ins. In order to bring the name up to the size it will have to be stretched $\frac{1}{2}$ -in. When running on long stuff this

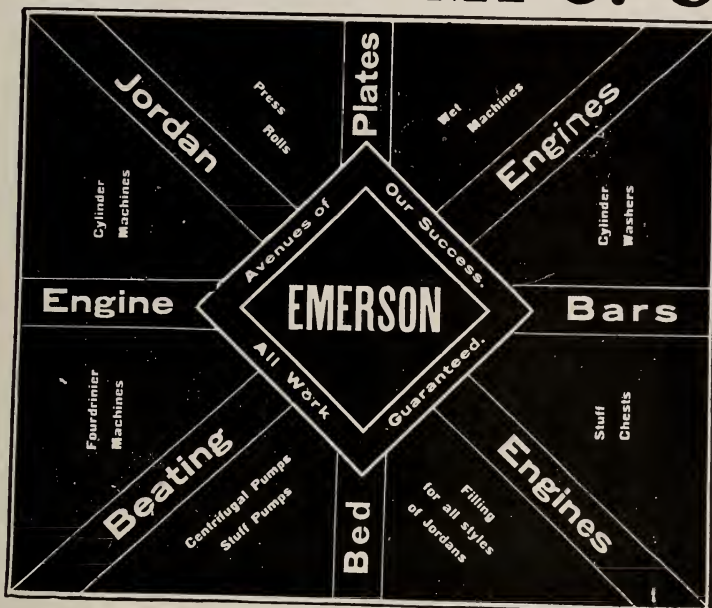
is easily accomplished; but when fine stuff is being run, it is very difficult to obtain the proper spacing, and the paper must be unduly stretched. When this grade of stuff is being run dandies should be made with an eighth of an inch more than the usual three-quarters allowed between the names.

When the distances between the watermarks are too short to register the tension of the web between the wire and presses is increased, thus causing the paper to stretch; if this is not enough to overcome the difficulty, a piece of tape can be wound around the ends of the dandy roll, increasing its circumference, and thus causing greater space between the watermarks. Rubber bands are better for this purpose than tape, as they are less apt to ridge the wire. The same result may be obtained by lowering the wiping cloth on the dandy, as this serves to make the dandy run slower. This method of getting proper space is used only when all others fail.



—At Halmstad, a town in the south of Sweden, Pontas Holmström is starting a spinning mill for making yarn out of paper. Such mills already exist in Germany and France and have drawn some attention in England as well as in the United States. So far the manufacture of rugs and carpets seems to be the best practical use of this new paper yarn. People in Swedish villages, especially in Ostergötland, are already making carpets with paper weft. Narrow rolls of paper tape are used in this case. The reed handles it very nicely, and this home-woven product is said to be very satisfactory. Hosiery made from paper yarns are already selling to some extent in Canada. These goods are chiefly made in Germany. If the industry develops there is no reason why paper textile fabrics should not be made in Canada. They would certainly be equal in merit to some of the shoddy woolen goods now imported from other countries to the displacement and damage of the Canadian woolen industry.—Exchange.

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WATER-MARKING PAPERS MADE ON CYLINDER MACHINES.

In endeavoring to obtain clear water-marks on cylinder-made papers, the results obtained by the usual methods of stitching letters on the wires of the marking cylinder are not satisfactory, says a writer in "Papier Fabrikant." It is true that the designs were legible, but the cleanness of the lettering left much to be desired. This was due to the fact that more pulp collected in the spaces between the raised wires of the design than on the design itself, and the water-mark had a "wild" appearance. It was as if a sheet of paper were made on a hand mould without shaking to distribute the fibres over the raised wires of the water-mark. Attempts to fix a dandy-roll against the wet web of paper on the felt after couching failed, because pieces of the paper always tore off and stuck to the dandy-roll. Finally, after several alterations, complete success was achieved by fixing a dandy-roll against the stuff on the marking cylinder

itself, between the level of the liquid in the vat and the couch-roll. The dandy-roll must run on very well-balanced bearings, and it must not be very large in diameter, because the space available is very small. The line of contact between the dandy-roll and the paper-making cylinder should be adjustable, and must be chosen according to the freedom of the stuff, the object being to effect contact at a place where the stuff is drained to the same extent as it would be on a Fourdrinier machine. The level of the pulp in the vat has to be kept as low as possible, and the couch felt has to be carried clear of the dandy-roll and brought down sloping at an angle to the couch-roll, the object being to make as much room as possible for the dandy. The taking-off of the paper by the couch felt is effected in the ordinary way.



The Adams Wagon Company have ordered a Duplex Pump from the Smart-Turner Machine Company, Limited, Hamilton.

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PULP AND PAPER MARKETS.

Toronto, Nov. 6, 1909.

The paper trade is fully engaged, and in some cases reported the trouble has been to get deliveries quickly enough. Prices are very firm all round. News is materially stronger than a few weeks ago, and sells generally at \$250 in large lots, or for more in small lots. Book papers and other high class grades have been particularly firm, and, though no actual advance is recorded since early last month, further advances are expected by some. Manilas and wrapping papers keep a little on the dull side, though it is not unlikely that the latter will go up a little shortly. There is little or no improvement in bags. No. 1 manila is quoted to-day around \$3.75 or less for large lots, while grey brown is \$2.75. Mills making coated papers have been extra busy for some time past. Paper has been exported from Ottawa in considerable quantities to the United States, but there is a degree of uncertainty about the tariff, which seems to prevent much business being done.

In pulp circles similar doubt exists, though it must be said that in Canada less worry seems to exist in relation to the new American tariff than in the United States itself. Some buyers in that country seem to have become possessed of the idea that the Dominion Government was about to prohibit pulpwood export forthwith, and will only give orders for immediate delivery.

Ground wood continues very firm, indeed, and there has been a distinctly upward movement since our last report. Prices are quoted at about \$17 or \$18 at the mill, though many believe it will not be long before they reach \$20. Water has been extremely low in the Eastern States, and just now the paper mills there could afford to bring pulp in from the Western States. For sulphite the demand is somewhat inactive, owing to large quantities being brought in from Sweden at a low price. Canadian sulphite fetches about \$2.10, or some-

times a little less, landed at mills in United States.

**SCANDINAVIAN MARKETS.**

The Norwegian managers of cellulose mills, knowing how much the pulp costs them, have done their utmost since the lockout commenced in the Swedish cellulose trade to get an advance, but only with indifferent result, although there is a loss on the Swedish production between July 7th and September 21st of no less than 93,000 tons, and the American demand is considerably stronger. Nothing could better demonstrate how great the over-production was before this Swedish labor war broke out. Paper-makers are, perhaps, a little more inclined to contract for mechanical, especially for forward delivery. But their price ideas are generally so wide apart from those of the sellers that business has only resulted in a few cases. On going to press we learn that a large contract has been concluded, delivery October, 1909, to October, 1910, at Kr. 38 f.o.b.—Farmand.

* * *

BRITISH MARKETS.

Oct. 26, 1909.

The market for both mechanical and chemical pulp is dull.

Chemicals.—The market is steady, with a fair amount of business passing and exports above the average, says "Paper Trade Review." Bleaching powder is quoted £4 soft wood casks at works, and contracts have been closed at rather under last year's prices. Caustic soda, 77 per cent., stands at £11 f.o.b. Liverpool. Ammonia alkali, 58 per cent., is unchanged at £4 10s. Soda crystals are quoted at £2 17s. 6d.; salt cake, £2, and sulphur, £5 5s.

Rags.—Recent trade improvement has not been maintained; domestic stocks, however, are not large and prices are same. Demand for foreign rags is better and prices are hardening. There is a strong demand for common waste papers.

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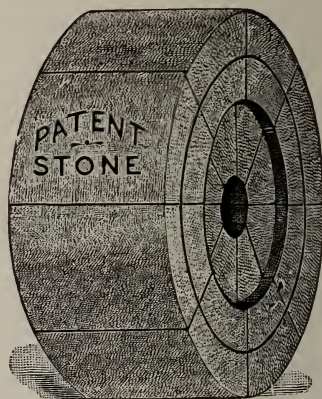
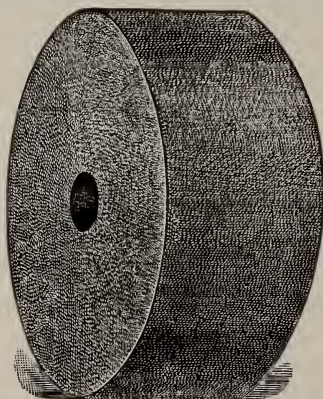
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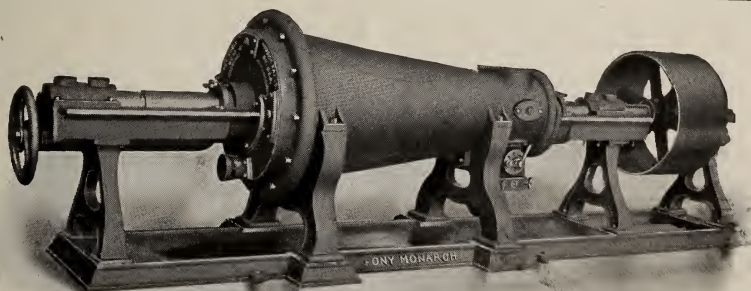
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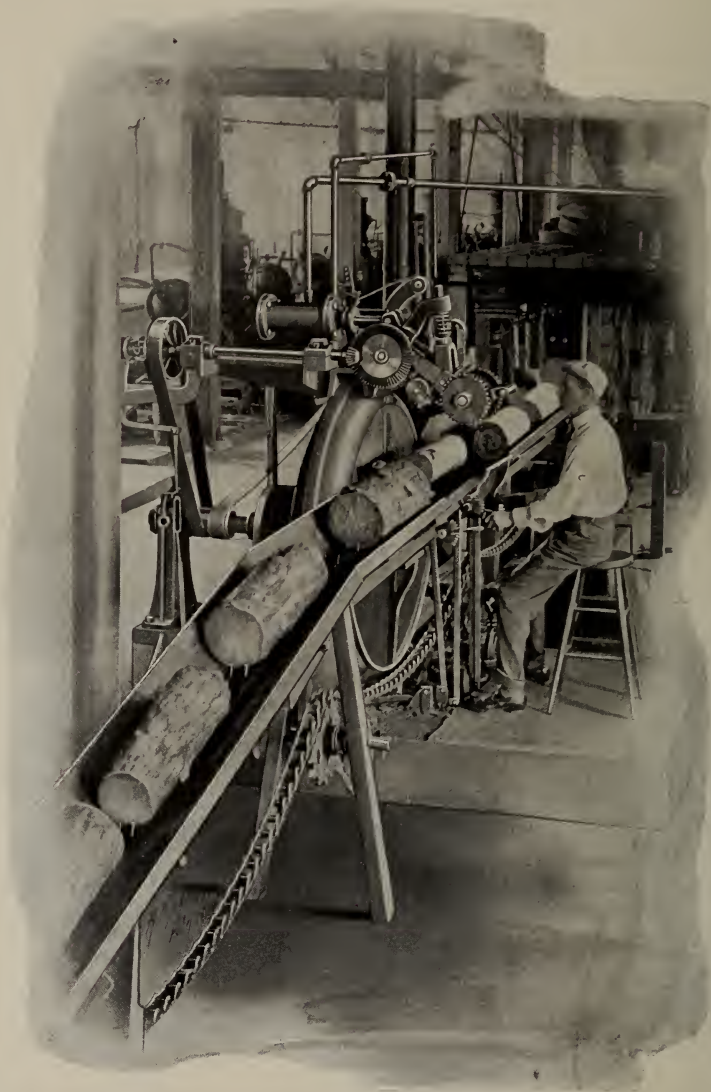
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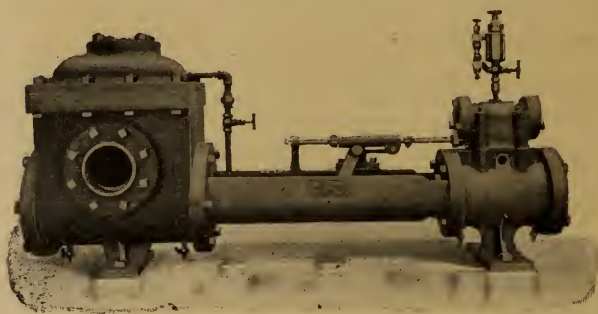
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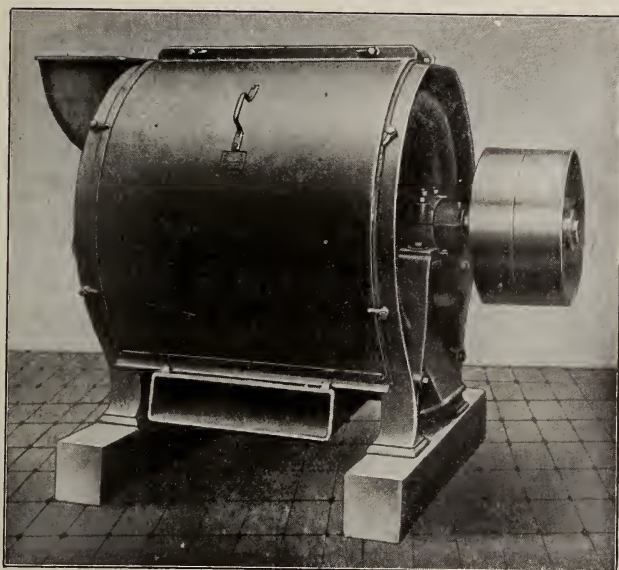
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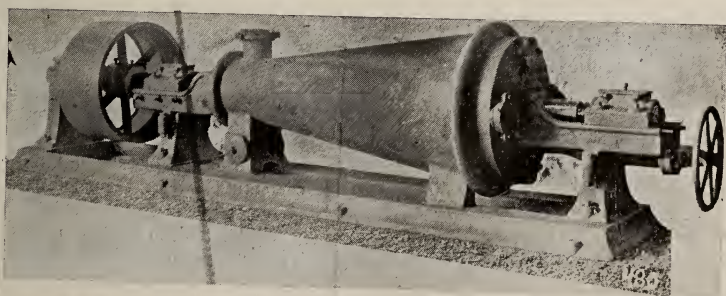
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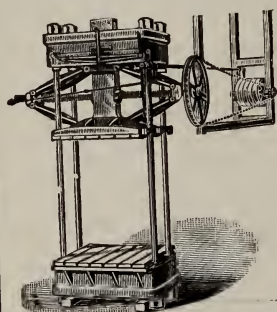
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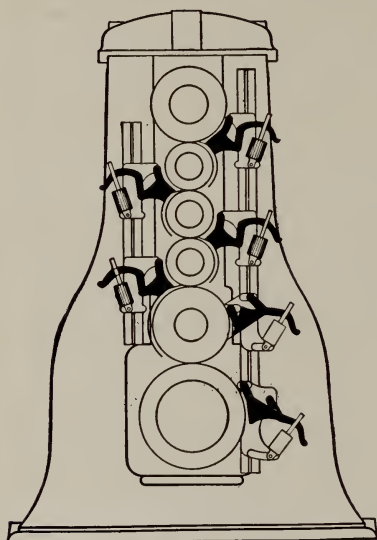
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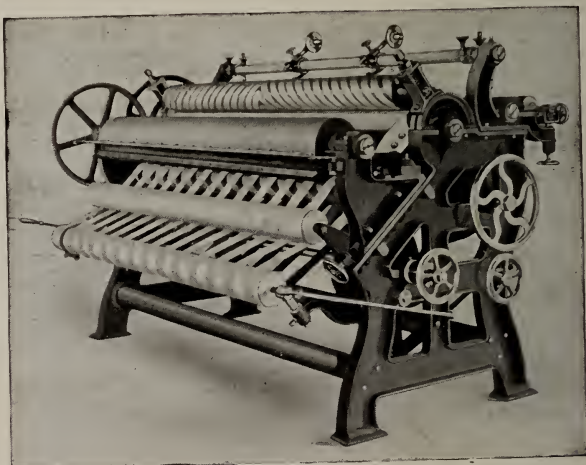


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**ONE BOARD MACHINE WITH
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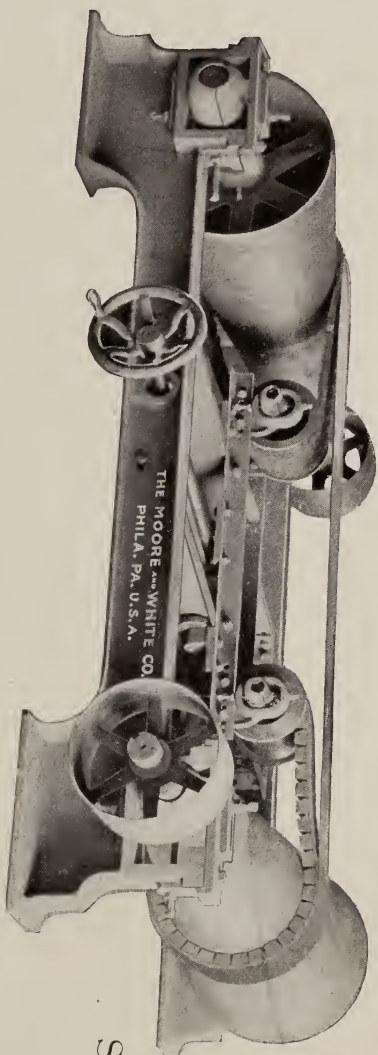
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High Speed Engines

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THE WORK IT IS DOING

These remarkable microphotographs illustrate clearly the work that the Pneumatic Save-All is doing. Figures 1, 2 and 3 show three samples of reclaimed paper stock—each magnified to ten thousand times its original area, i.e., “100 diameters.” The wire cylinder mold covering (if magnified equally with the stock) would show openings approximately one inch wide from center to center of wires. Yet this stock was saved—over 90 per cent of it—from waste water, and collected at the rate of one or more tons per diem by a single Pneumatic Save-All; the daily inflowing waste water amounting to several hundred thousand gallons.

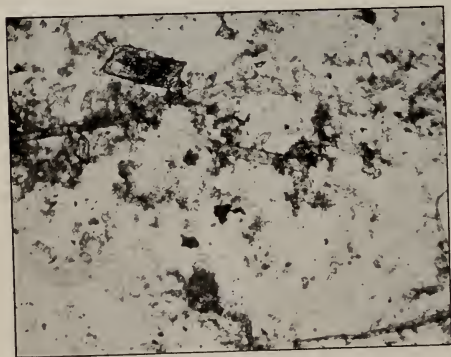


Fig 1.

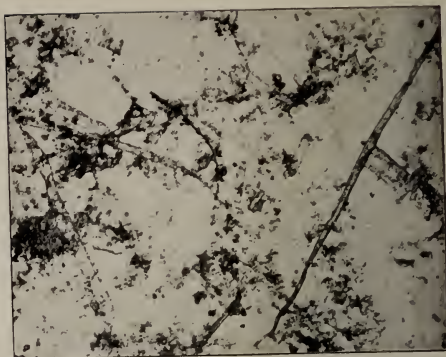


Fig. 2

THE REASON FOR THESE RESULTS

The saving of waste pulp and paper stock is an absolutely different matter from the original process in which that stock was used. That is the reason that so many attempts to save it, being based on such processes, have failed.

Waste stock is thin, and is usually rich in the finest of the fibre. It has all escaped once from some process and will escape again if the work of saving it is not correctly undertaken.

The Pneumatic Save-All provides exactly the right conditions for saving waste, as no previous method has ever provided them. Its special pneumatic action is delicate enough to draw the finest fibres onto the cylinder mold and hold them there while they drain, without pressing them through.

CAPACITY AND ECONOMY

Its capacity is a quarter million gallons (or more) a day. Its efficiency is so great that the cost of operating it is but a few cents per ton, and the waste saved is practically all net gain. The fibres are usually so fine that even the touch of a couch roll would send them through the cylinder mold. (It should be remembered that much of this waste originally occurred through couching). Hence we do not use any couch or scraper to remove the collected stock, but utilize pneumatic mechanism to blow the stock away from the cylinder onto an inclined plate. In this special manner we can separate the finest fibres from the waste water rapidly, continuously and automatically.

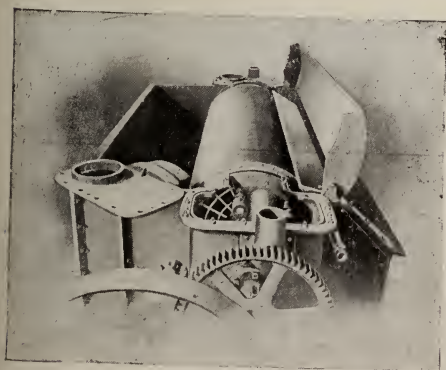


Fig. 4. PNEUMATIC SAVE-ALL



Fig 3

CONTINUOUS AUTOMATIC ACTION

This Save-All is small, easily installed, and not only operates automatically and continuously, but is automatically kept from fouling by the air blast and a shower pipe. As nothing but air is brought to bear upon the stock while it drains, every particle has a chance to attach itself to others and cling together in a slightly matted film and this film is blown off continuously as the cylinder revolves. Hence practically all the waste---even the very finest of it---is saved.

Send for full information.

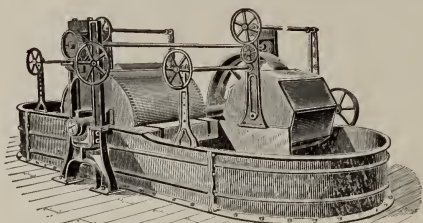
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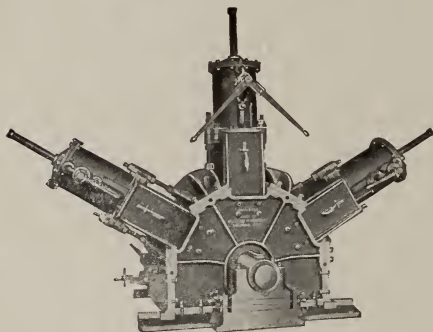
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Machinery for Wood Pulp and
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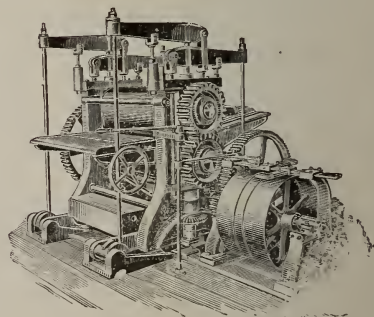
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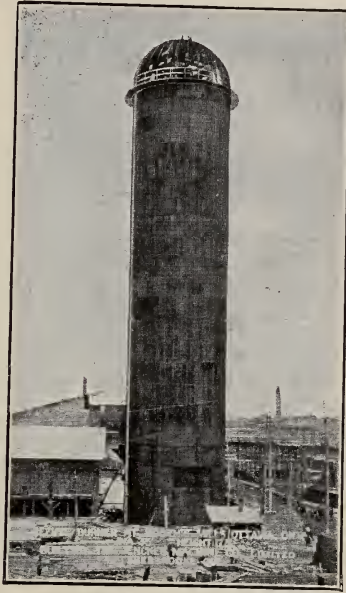
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Special Machinery



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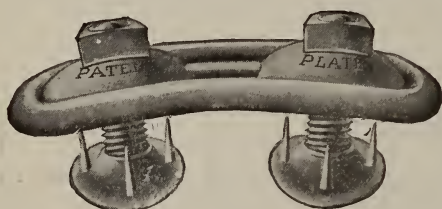
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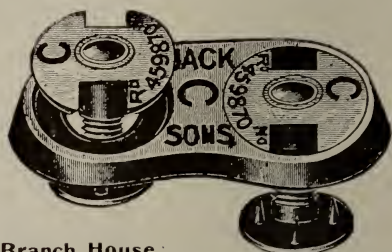
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THE PULP AND PAPER MAGAZINE OF CANADA

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A REVIEW.

Now that the question of the interchange of supplies of pulp-wood and pulp between the United States and Canada has been brought into the field of practical politics by the Payne-Aldrich Tariff Act, it may be well to take a review of the position of Canada as to its resources in pulp-wood compared with the United States and other countries.

That the United States is becoming more and more dependent on Canada for its supplies of pulp-wood and pulp is evident from the records of the export trade. In 1890 when these materials first received a classification in our trade returns Canada's export of pulp-wood was in value \$80,000 and in quantity about 25,000 cords. Almost without exception each succeeding year showed an increase up to 1908. By 1904 our exports of pulp-wood to the States reached

479,238 cords valued at \$1,788,049, and in 1908, they had grown to 901,861 cords valued at \$4,655,371. Owing largely to the after effects of the financial panic they fell off in 1909, the figures being 794,986 cords worth \$4,356,391. It should be noted that the value per cord has increased in these five years from an average of \$3.75 a cord to \$5.50 a cord, from which it may fairly be inferred that the supplies of cheap wood in the United States, which some manufacturers boasted were being held in reserve are non-existent. This inference is strengthened by the fact that the exports of Canadian pulp to the paper mills of the United States have, in spite of the heavy duty, increased with more or less steadiness from \$147,098 in 1890 to \$3,064,879 in 1909. Comparing the exports of pulp with those of pulp-wood to the United States in the last five years we find that Canada shipped \$1,807,442 worth of pulp in 1904, and, as stated, \$3,064,879 in 1909. It is worth noting that the grand total exports of Canada in pulp have grown from \$168,180 in 1890 to \$1,816,016 in 1900, \$2,409,074 in 1904, and \$4,306,929 in 1909. The grand total of Canada's exports of wood pulp of all kinds in 1890 was \$168,180 and this export increased with almost unvarying regularity till in 1904 it amounted to \$2,409,074 and in 1909 to \$4,306,929. Our exports of pulp to Great Britain have grown from \$460 in 1890 to \$548,720 in 1904 and \$1,084,720 in 1909. The exports to other countries have also grown, but more spasmodically, being in 1909 \$157,330. Let us note also that the

Canadian exports of paper to the United States have increased from \$160,563 in 1904 to \$990,156 in 1909, to which may be added \$158,000 in printed books in 1909, this last item having been doubled in the five years.

With regard to the development of the United States paper trade we will not go into details but it will be sufficient for the present purpose to say that a special report just compiled by the Department of Commerce and Labor at Washington shows that imports of paper and paper products into the United States have increased from \$3,000,000 in 1899 to \$12,000,000 in 1909, while exports of paper and manufactures thereof, have in the same period increased from \$5,500,000 to \$8,000,000.

The logic of these two sets of figures is that in spite of the obstruction of tariffs and in spite of the competition of other countries the primary advantages which nature has given to Canada are surely telling, and if we do not squander our raw materials as our neighbors have done there is a great destiny for this country in the pulp and paper industries and other manufactures based upon wood. Out of 2,600,000 cords of wood annually consumed in the paper trade of the United States, 920,000 cords—according to United States returns—are imported from Canada, so that if the present provincial restrictions, or even a federal export duty on wood were held to be a discrimination by Canada against the United States, and the maximum tariff were enforced against Canada, it seems clear from the figures cited that the United States and not Canada would be most hurt. Those concerned in the paper and pulp industry there would be cutting off their noses to spite their faces.

The ability of Canada to hold its own, not only with the United States but with any country in the world, in these trades, seems assured when we consider the available supplies of pulp timbers. Taking Europe, we find that though

Germany is a large producer of timber she has no pulp-wood for export but wisely sends it out as manufactured pulp and paper. Austria, Denmark, Norway and Sweden prohibit the export of pulp-wood, while of all the nations of Europe Scandinavia and Russia alone would be able to export pulp-wood if they wished; and in both these two cases such timber as is shipped abroad is from the natural forests—that is, not produced under administrative methods. Professor Schwappach, a German forestry investigator, and M. Melard, the French expert, both predict an early exhaustion of exportable surpluses of timber of nearly all kinds, especially coniferous trees. The former says that in large areas of northern Russia pine and spruce do not re-establish themselves easily after being cleared away owing to the growth of moss, sphagnum and weeds; and from this and other causes, Melard says that when by the middle of this century Russia has obtained a population of 150,000,000 "its timber exports will have ceased and it will be fortunate if Russian forests have been so carefully managed as to supply her own local wants." Finland has been spoken of as a great prospective source of pulp, but Sir William Schlich said recently that "already the increment of the Finnish forests is smaller than the annual cutting by 20 per cent." This statement is made on the authority of the Forest staff of Finland.

In regard to the condition of things in Scandinavia Professor W. Somerville in his recent address before the British Association, quotes from a statistical work by G. Sundborg, on the industries of Sweden, in which it is stated that 106,000,000 cubic feet of timber are being cut in Swedish forests beyond the annual growth. When we consider the small area of the country this is a startling rate of depletion. Professor Somerville adds: "I cannot pretend to know much about Sweden from personal examination, but last year I travelled about a thousand miles in the country and endeavored to learn what I could. The

impression left on my mind was that in much of the country the rock is hidden by but a thin covering of soil, and that the growth of trees is very slow. Moreover, when a forest is felled the soil suffers severely from washing by the heavy rains, and where drainage is defective there is the same tendency to the formation of peat as Schwappach noticed in Russia. It was also evident that no attempt is being made to continue the forests on much of the area hitherto under wood." This is because of the rapid expansion of the dairy interests, cattle being grazed on former wood lands. The State however has recently placed a small export duty on timber, the proceeds of which are to be devoted to the reforestation of Crown lands. While this may stay the devastating process it is clear that no pulp or paper manufacturing country can look to Scandinavia as a source of pulp-wood even if such a duty were removed.

Turning to Asia, Siberia alone has an exportable supply of pulp-wood, but unfortunately the enormous hauls would prevent large export even if that vast country were well supplied with railways, which it is not. Mr. Hodgson, British Consul, reporting on that region says:—"With regard to Siberia, as a whole, the opportunities of export are limited. A shipping trade with the north of that country cannot be contemplated, and transportation over thousands of miles of rail is almost equally impossible."

In regard to the wood supply of the world at large, M. Melard says that present consumption of timber "is in excess of the normal production of all accessible forests, and the deficit is made up by forest destruction." In other words, adds Prof. Somerville, the world is "living on its forest capital and every one knows where such a spend-thrift proceeding must land either the community or the individual."

This summing up of the situation is true without doubt, and its mere state-

ment shows how supreme is the duty of those in administration of the forests of Canada to conserve these vital resources, taking warning by the prodigality of other nations. This is the more urgent when we remember that though Canada has a vast area of unexploited lands in the north those regions cannot be reached except by great outlay, and when cut over will reproduce themselves but slowly owing to the short growing season, as in Scandinavia and Finland.

While Canada stands unequalled in the world as a field for the pulp and paper industries, and may easily discount the effects of adverse legislation by any other country it will not become us to flaunt our advantage with boastfulness. While appreciating our advantages let our governments not forget that the matter of tariffs and trade regulations is only a part of the forest conservation problem. Such questions as the reckless destruction of timber lands by the carelessness of railway and other corporations, and the skinning of the richest pulp lands by fake settlers and other agencies, bring before our Provincial and Federal Governments duties just as pressing, if more unpleasant, than those that can be carried out at the expense of a neighbor.



CANADA AND THE UNITED STATES TARIFF

The march of events seems to prove that the United States has more to lose by the inauguration of tariff "extras" than the country against which they are aimed. Not only this, but the United States itself is realizing the fact. Representative Jas. R. Mann is in the position of the man who can truthfully say "I told you so"; because, when chairman of the Special Committee on wood, pulp and print paper, in the last Congress, he suggested a certain moderate course of action and foretold that if such a moderate policy were not fol-

lowed it would mean a cry for more strenuous action in Canada, which would act detrimentally to the interests of publishers, paper manufacturers and the whole commercial body in the United States. This is exactly what has happened. Canada has neither implied nor intended any harm to American interests, but the final revision of her neighbor's tariff simply showed that she had to look after herself, and if in so doing her neighbor found something he did not like, that was a thing she was sorry for, but could scarcely be expected to rectify at her own expense. It is not only those directly connected with the pulp and paper trade who fear the results of bringing into force against Canada the maximum clauses of the new United States tariff; but the thousands of Americans who participate in the \$300,000,000 trade turn-over with the Dominion and who fear a general dislocation. In fact, it is with the avowed object of "averting a tariff war with Canada" that Mr. Mann, far-sighted enough to know where his country's interests truly lie, is introducing into Congress a series of new resolutions calling for the revision of the pulp and paper schedules as imposed by the Payne-Aldrich Act. One resolution calls for the postponement of the application of the maximum tariff from April 1st, 1910, to January 1st, 1911. Another provides that the maximum tariff shall not apply to wood, pulp and printing paper imported from Canada. He is also introducing a bill to encourage and promote commerce between Canada and the United States, which provides that Canadian pulp and print paper shall be admitted free of duty on condition that Canada or the provinces in which they are manufactured shall not forbid or restrict or impose any export duty or export license fee on paper, ground wood pulp, or pulp wood. It is said to be Mr. Mann's intention to refer this bill to the Committee on Interstate and Foreign Commerce, of which he is chairman, and it would then probably

come before the House. Mr. Mann evidently has his reasons for these proposed tactics. He and others know the danger to which the present dominant party in the Republic would be subjected if, through the imposition of maximum pulp and paper tariff schedules against Canada, a war of retaliation should ensue, endangering the enormous trade between the two countries, of which the United States has by far the larger share.

President Taft refers to this matter in his recent message, and incidentally seems to be looking for a loop-hole for escape from what seems to some people to be the only consistent course to pursue in view of the terms of the tariff bill. He finds this loop-hole in the little word "unduly." "In order," he says, "that the maximum duty shall be charged against the imports from a country, it is necessary that he shall find on the part of that country, not only discriminations in its laws or the practice under them against the trade of the United States, but that the discriminations found shall be undue; that is, without good and fair reason. No one," he adds, "is seeking a tariff war or a condition in which the spirit of retaliation shall be aroused." He furthermore expresses the hope and belief that no such result need be anticipated in the case of Canada.

In this country it was supposed by a few timid or imaginative persons—chiefly however, politicians on the opposition side, who presumably wanted ammunition against the Government—that the ratification of the new Franco-Canadian treaty was simply a return for favours ination against the United States, and at the third reading of the bill some opinions of this sort were uttered in the House. It was very emphatically shown however both by members of the Government and by independents that that treaty was simply a return for favours from another country and in no way implied hostility towards the United States; moreover, that to delay ratifica-

tion of a bill until the approval of a third party had been obtained, was not a course which could be pursued with dignity by this country.

The feeling of the general public in Canada has become more and more crystallized along this line: that the United States may and does create her tariff policy to suit her own conditions and her own best interests, as they appear to her government; that Canada should proceed along exactly the same lines; that if Canada's policy meet the approval of the United States, so much the better; but we cannot pretend to alter it, should it unfortunately not be approved.



MISREPRESENTING NEWFOUNDLAND.

Last month we devoted some attention to the "New York Herald's" extraordinary attack on Lord Northcliffe's great pulp and paper enterprise in Newfoundland, and on the resources of the Island itself. We are now in a position to take up some more of the "Herald's" ill-grounded charges, and to give the views of some of those whose opinions should carry most weight.

One charge made by our daily contemporary was to the effect that the Newfoundlanders, while good sailors, could not adapt themselves to interior industrial pursuits. To this, W. D. Reid, President of the Reid Newfoundland Company, who is thoroughly acquainted with every phase of the Island's resources and industries, replies as follows:—

"Newfoundlanders make remarkable workmen and possess an adaptability not equalled anywhere else. To-day all branches of the Reid Company's system in this colony are operated almost entirely by natives of the colony. The ordinary navvies or laborers who built the railroad were men who had come directly from their fishing schooners to work on the road, and who soon proved themselves the equals of any railway operatives elsewhere. As lumbermen and mill

hands the Newfoundlanders proved their capacity completely in the company's mills at Glenwood and elsewhere, and the same is true of them as miners. The whole Reid system to-day, with the exception of a few heads of departments, is operated by natives of this colony."

With regard to the burning over of the areas now possessed by the Anglo-Newfoundland Development Company, and to the scarcity of raw material, these fabrications should be effectually disposed of by the following emphatic statement of fact by J. P. Hawley, director of the Newfoundland Geological Survey:—

"The statements with regard to the country's timber resources are a tissue of misrepresentations, falsehoods and gross exaggerations. Thirty-five years ago I explored the whole Exploits watershed. I traced the course of the river for more than 200 miles in that and succeeding seasons, and I went through the timber country, and can speak with authority respecting it then and in more recent visits. With regard to the statements that burnt areas in this country never reproduced themselves, I can give that a flat contradiction. In 1768, or over 140 years ago, Cartwright, the historian of Labrador, went up the Exploits on a mission from Governor Palliser to the Red Indians, and describes the country as being then very densely wooded, and the trees of magnificent growth, though there were Indian and colonial accounts which made it clear that the whole country, from Red Indian Lake to the Northhead of Exploits, had been devastated by fire some eighty years previously. All this country that had been fire swept then was in Cartwright's time regrown, and his description of the forests he found would make it appear that the trees had matured many years previously, so that it is evident that the timber will reproduce itself in this valley in a much shorter period than eighty years. Sections of the country have been burned more than once since that time, but they have regrown also. An evidence of this is seen in the clearings along the railway line,

where, though the country was burned not more than ten years ago, young spruce is springing up in every direction, and is now fully 6 feet high. The earliest years of a tree's growth are the slowest, and it seems only reasonable to conclude that within a generation at most these sections of the country will be reforested sufficiently to supply excellent wood for pulp making. There is, in my opinion, certainly an enormous quantity of timber in this land suitable for pulp wood, a quantity sufficient to keep many mills in successful operation for all time, if proper methods are pursued."



THE CANADIAN SIDE.

While the Americans have been deeply engrossed in the problems of their recently enacted tariff and wondering where its paper and pulp schedules were going to land them, Canadian public sentiment has manifested itself in the shape of two resolutions, notice of which has been given in the Dominion Parliament.

The resolution of Mr. E. N. Lewis, Conservative member for West Huron, runs as follows: "That in the opinion of this House such an export duty should be placed on the export of pulp and pulp-wood as will be sufficient to entail its manufacture into paper in Canada, and thereby save for Canadian labor the many millions of dollars now lost annually; provided, however, that when a foreign nation admits paper manufactured in Canada free, then in such a case no export duty shall be charged on pulp and pulp-wood exported to such nation from Canada."

Mr. Lewis' resolution, of course, is aimed against the contingency of the United States placing its schedules of maximum duties in force against this country, which at the present time it must be admitted seems scarcely likely. Apart altogether from that, however, there is no doubt that a very large number on both sides of the House will be found to support the motion, which

is in keeping with the growing realization that Canada must guard against the depletion of her natural resources. Even more significant, from the political point of view, is the announcement of a motion by Mr. German, who is on the Liberal or Government side. It reads as follows: That in the opinion of this House the exporting of pulp-wood from Canada should be at once prohibited, to the end that the products of such wood should be manufactured in Canada, thus creating new Canadian industries and thereby affording employment to a large number of Canadian citizens.



Chester W. Lyman of the International Paper Company has written a long article giving in detail his reasons for believing that Canada and not the United States is responsible for the present awkward situation in regard to pulp and paper. According to him Canada has acted selfishly and aggressively; and not only this, but the United States has the whip hand, which she will be wise to use. Mr. Lyman's article is an able plea in a partisan sense, but we think that he has his work cut out, if he hopes to convert his fellow manufacturers in the United States, let alone Canadians, of the justice of his case. J. W. Lyman's arguments, we think, are sufficiently controverted in "A Review," published in this number and in the pamphlets issued from this office.



—W. O. Sealey, M.P. for Wentworth, at a banquet of the Canadian Club at Boston, told his hearers that the Payne tariff bill, far from doing Canada any harm, had proved an excellent advertisement for the Great Dominion. "It has in substance," he said, "advertised to the world that Canada has the greatest pulp supply of any country in the world; in fact, more pulp-wood to-day than all the other countries in the world combined, while natural reforestation gives promise of a continuous and everlasting supply."

PULP AND PAPER NEWS

The Riordon Paper Mills are installing Pneumatic Save-All machines at Merriton, Ont.

* * *

W. J. Finlay, manufacturer of wrapping papers, Strathcona, Alta., is purchasing a gas converter.

* * *

F. E. Grafton, of Grafton & Sons, Montreal, publishers, etc., died at the age of 86.

* * *

The E. B. Eddy Company has opened up a new branch warehouse for Port Arthur and Fort William.

* * *

A. M. Huestis of the Canada Coating Mills, Georgetown, has been on a business trip to Quebec Province.

* * *

J. Christie of the J. Christie Company, pulp dealers, Toronto, has been on a visit to Ohio and Michigan.

* * *

Joseph Firstbrook, who formerly conducted a paper box factory in Toronto, died in London, Ont., at the age of 60 years.

* * *

The Riordon Paper Company, Limited, will move into its new office building on Beaver Hall Square, Montreal, about February 1st.

* * *

The premises of the Guelph Paper Company were damaged by fire. Loss on stock \$5,300, insurance \$3,500; loss on building \$687, covered by insurance.

* * *

Fire consumed about 100 cords of pulpwood belonging to S. A. Lazier & Sons, of the Moira Paper Mills, Belleville. The damage was \$500, with no insurance.

* * *

At the E. B. Eddy Company's mill at Hull, Que., a stack of paper became overheated and threatened a fire, which, however, was speedily extinguished.

* * *

The Montrose Paper Mills, Thorold,

has placed an order for a new equipment of dryers, sizing, etc., with the Rice, Barton & Fales Machine & Iron Company, of Worcester, Mass.

* * *

A paper mill in the United States had to suspend operations recently through a number of large eels passing through the race and getting into and clogging the waterwheels.

* * *

The New Brunswick Pulp and Paper Company, Millerton, N.B., is putting in a second machine for making Kraft paper. James Beveridge, the president, paid a visit to Toronto last month.

* * *

The Canada Paper Company has installed two new triplex stuff pumps in its mill at Windsor Mills, Que. These pumps are made by the Smart-Turner Machine Company, Ltd., Hamilton.

* * *

A movement is under way to erect pulp and paper mills, perhaps the largest in the world, on the Saguenay River in Quebec Province. We expect to be in a position to give full particulars at an early date.

* * *

Capitalists of Grand Rapids and Alpena, Mich., have formed a company and acquired extensive timber leases in the Renfrew district of Vancouver Island. They will take out pulp logs on an extensive scale.

* * *

The Smart-Turner Machine Company, Ltd., Hamilton, who make a specialty of pumps for pulp and paper mills, have installed one of their duplex pumps in the mill of the Kinleith Paper Company, at St. Catharines.

* * *

D. H. Hudson, who recently purchased an interest in the Winnipeg branch of the paper dealers' business, of Douglas & Ratcliffe, Toronto, under the name of Douglas, Ratcliffe & Hudson, has opened branches at Calgary and Vancouver.

The Bay Shore Lumber and Pulpwood Company, Great Salmon River, N.B., expect to get out something like 5,000,000 feet of logs this winter. They expect to get 10,000 cords of pulpwood out at St. Martins, Tynemouth Creek and Black River.

* * *

The Development & Funding Company's chemical plant and business at Niagara Falls, N.Y., has been sold to the Hooker Electrochemical Company, Limited; the same interests as heretofore will control and manage the business.

* * *

The National Vulcanization Corporation of the United States in conjunction with the Lumber Securities Corporation propose to put up vulcanizing plants and pulp mills in Newfoundland and Canada. The Newfoundland branch is being capitalized at \$5,000,000.

* * *

We regret to hear of the death of Felix Hamelin, of the firm of Hamelin & Ayers, Lachute, Que., at the age of 88 years. For some time he manufactured woolen goods, but for the past several years the firm has made pulp and paper makers' felts, printers' felts, etc.

* * *

J. R. Booth's new power house at Ottawa, containing two 3,000 horsepower generators is almost completed, and will supply power for the sulphite and box board mills. Steam will continue to be employed in the news mill, as it helps in drying the paper.

* * *

Powell River Paper Company, Limited, Vancouver, has been incorporated with a capital of \$1,000,000, to manufacture pulp, paper, and lumber, etc., and to acquire from the Canadian Industrial Company pulp leases and concessions in the province of British Columbia.

* * *

The Sault Ste. Marie Pulp and Paper Company are thinking of re-equipping

their sulphite mill, which has been closed down for some years. The mill is running full capacity on ground wood, shipping 100 tons per day to the United States. F. J. Buchanan was recently appointed sales manager for this company, J. G. Sutherland having gone away to Minneapolis.

* * *

The Jaffray Manufacturing Company, of Columbus, Ohio, and Montreal and Toronto, are placing on the market the latest things in conveying apparatus specially adapted to pulp, paper, and lumber mills. H. S. Riddle has been appointed manager of the Montreal works, and J. A. W. Archer has been appointed to take charge of the new Toronto branch which is located in the Dineen building.

* * *

The Hearst options on the pulp properties on the south coast of Newfoundland are said to have expired. W. B. Trieve, of St. Johns, has left for New York to ascertain whether the Hearst people intend to take up the options or whether the deal is off indefinitely. It is regarded as probable that Mr. Hearst will take up the limits as there is no doubt the pulp properties on the island are very valuable.

* * *

The Wm. Cauldwell Paper Company, Limited, Montreal, has been granted incorporation with a capital stock of \$50,000. It will, as before stated in these columns, carry on a general business in all grades of paper, manufacture the same and products thereof, manufacture and deal in wood, pulp, etc. The incorporators are W. Cauldwell, of Westmount, Que.; J. Fortier, J. E. Pelletier, and N. Faribault, all of Montreal, and E. Lalonde, of Maisonneuve.

* * *

W. S. Kimber, J. A. Parker, E. A. Dickson, and J. T. Iden, of New York.

organized with a capital of \$4,500,000 as the West Coast Pulp & Lumber Company, are said to have purchased from W. H. Taylor, Dr. J. S. Tait and others, about 300 square miles of timber limits along the Robinson, Fishel, and Crabbe Rivers, on the west coast of Newfoundland. They have been promised by the Newfoundland Government the same concessions as to free importation of machinery, etc., as were granted to the Harmsworth and Albert Reid companies.

* * *

The Smart-Turner Machine Company, Ltd., of Hamilton, makers of power pumps for all purposes have been very successful with their stuff pumps and other pumps for pulp and paper mills. Mention has been made of more of these orders. Besides these they are filling orders from many other industrial establishments, among which are the Page-Hersey Iron, Tube & Lead Company, the Toronto Ferry Company, the Larkin Lumber Company, and the W. Harris Company, Toronto; J. C. Mun-Elora, and the Jemmerman Manufacturing Company, Hamilton.

* * *

The British-Canadian Wood Pulp & Paper Company, whose big plant at Port Mellon, B.C., is now in operation, turning out butchers' manila, building and roofing paper, drab and colored fibre, etc., is offering to the public 100,000 shares of preference stock. Extensions are either already under way or about to be undertaken, which will increase the output from 25,000 to 100,000 lbs., as it is the intention of the company to cater largely to the export trade. The company recently purchased the entire assets of the Western Canada Wood Pulp & Paper Company, Victoria, consisting of over 55,000 acres of timber land on Quatsino Sound, but it obtains considerable additional supplies in the shape of short ends and tops, etc.

* * *

The Brooks-Scanlon Lumber Company, of Minneapolis, Minn., which recently acquired a wood pulp and paper

making concession from the Provincial Government, has filed its cash bond of \$50,000 as a guaranty for the erection of a pulp mill and the manufacture of pulp, and is now proceeding with the erection of a mill. Its concessions cover 140,000 acres of land, located on Vancouver and Straits Islands and the mainland. The land is said to be well covered with cedar, spruce, fir, larch and balsam, and has water power sufficient to produce 40,000 to 50,000 horse-power. This company also has large timber holdings in Minnesota, Mississippi, Louisiana and Florida, but it is now transferring its operations to British Columbia to a certain extent.



—The Amalgamated Asbestos Corporation, Ltd., of Canada, had gross earnings for the first four months of its existence of \$520,267, while the surplus after deducting \$125,000 for the four months interest charges, was \$71,200. The stocks of the corporation are listed on Montreal and Toronto Exchanges and will shortly be listed in London. E. B. Greenshields, Montreal, is president, and R. H. Martin, general manager.

—At a dinner of the Wholesalers' and Manufacturers' Association of Detroit, it was resolved that "Canada does not discriminate against the United States within the meaning of our tariff act of 1909 and with all due deference we beg to express our sense that it is the duty of the President to proclaim the minimum tariff as to Canada on March 31, 1910."

—The Canadian Linen & Paper Company has made an agreement with the Port Arthur, Ont., Council to erect a factory for the manufacture of linen and paper from flax by a secret process. The city grants the company a free 50 acre site and exemption from taxes. It is the intention to erect a \$50,000 plant next May. E. P. Bender, Dr. Farr, and H. F. Forest, of Winnipeg, and Professor Wreygret, of France, are the names mentioned.

MONTREAL PULP AND PAPER MATTERS.

(Special to the Pulp and Paper Magazine).

Montreal, December 11, 1909

La Tuque Pulp Mill

In connection with the new pulp mill which is to be constructed at La Tuque, it was recently announced that the Quebec and St. Maurice Industrial Company started work sometime in October to carry out the plans for the new buildings. The first building is to have dimensions of 150 ft. by 50 ft. and part of it is to be four stories high. Foundations for this building were completed before the frost came. The walls will be composed of reinforced concrete and the plant will be the most modern money can purchase. The machinery for the manufacture of somewhere around 50 tons of chemical pulp, per day, will be in position, it is hoped, by the first of July next, and the company will then be ready to commence operations. Additions will be made to the buildings and plant as may be found necessary, so that it is expected that building operations will be practically continuous for some time to come. The Quebec and St. Maurice Industrial Company, some time since, purchased extensive limits on the upper St. Maurice, above a place known as Weymontachene, and it had also limits on a number of the tributaries of the St. Maurice, such as the Windigo, Tranche and Croche Rivers. It also possesses the lease of the power at the falls of the St. Maurice, close to La Tuque village, where it is estimated at least 50,000 horse power may be developed by the construction of a dam. It is not the intention of the company to go in for anything so extensive at the present moment, however, inasmuch as use can only be made of about 1,000 horse power. This can be provided by means of a raceway and penstocks. This will supply sufficient for the first installation of machinery, including an electric light

plant, and leave a surplus for other purposes. There is unquestionably a close connection between the construction of the mills referred to and the determination of the Quebec Government to put a stop to the exportation of pulp wood cut on Crown Lands. The pulp made in the mills at La Tuque will be shipped to the headquarters of the interests owning the company, at Berlin Mills, New Hampshire. In fact, it may be recollected that the waterpower rights were sold some three years ago, or so, to Brown Brothers, of Berlin, N. H., and Portland, Me., who control the Berlin Mills Company, and the Burgess Sulphite Company. It was the Quebec and St. Maurice Industrial Company, however, which purchased the timber limits and the connection between the two interests is apparent.

Early this month the entire mills and plant of the Silsby Lumber Company, at St. George, Beauce Co., Quebec, were destroyed by fire. Fortunately very little lumber was destroyed, only two cars being within reach of the flames. The mills were doing a good business and were busily employed for some time past. The loss was estimated at about \$50,000, of which some \$20,000 was covered by insurance. The Silsby Company is composed mostly of St. Johnsbury, Vt., people who purchased limits from C. B. Howard and erected a fine plant.

New Brunswick Pulp and Lumber Mills

As intimated already in these columns The Nepisiguit Lumber Company, an American concern, with R. W. Ellis, of the Union Trust Company, of Springfield, Mass., as president, has purchased all the lumber properties of the Adams Burns Company, in New Brunswick. The property is a very valuable one and consists of several thousand acres of freehold property, about 500 square

miles of licensed lands, stores and offices in Bathurst, besides mill, wharves, tugs, lighters and booms at the mouth of the Big Nepisiguit river, together with the stock of the Bathurst Boom Company and an electric light plant. This is not the first operation of the new company. The organization of the concern took place two years ago, and the Stacy mills and limits at Bathurst were then purchased. It is now said that a new mill will be added and that thirty million feet of logs will be cut this year to be manufactured for the American market. One of the interests in the deal is the A. Sherman Lumber Company, owning large pulp and paper mills in New York, Pennsylvania and Tennessee.

Labrador Pulp and Lumber Company

Montreal has been hearing quite a little of the Labrador Pulp and Lumber Company, during the past few days, through a falling out between two of the insiders and a legal action resulting therefrom. Some time ago, it was announced from Newfoundland that R. H. Reid and D. Ford, respectively vice-president and secretary-treasurer of the company, had arrived there in its interests. The company was referred to as British-American while its areas were spoken of as being situated at Hamilton Inlet and Sandwich Bay, Labrador, the Hamilton Inlet property taking in part of the Alfred Dickie limits. The property was said to have been purchased from the Newfoundland and Canadian owners, among whom were W. C. and R. B. Job and J. W. Grant, and consisted of 2,000 square miles of well-timbered lands. It was claimed that the company would erect a manufacturing plant at each of the two points mentioned, having a combined output of 140,000 tons of pulp and 20,000,000 feet of lumber, per annum, the construction of the mills having already been contracted for by an American firm with Mortimer Foster, engineer, of New York, at its head. It was further added that already 15,000 logs had been cut and stores were being

moved in, while work upon the mills would be commenced in the spring, the contract calling for their completion early in 1912. It was also said that contracts had been made for the sale of the pulp, one Italian firm taking 50,000 tons per year, for seven years, and the balance going to England. Mr. John McMartin was president.

During the present week a warrant was issued for the arrest of D. Ford, on a charge of forgery. The accused pleaded not guilty and expressed the desire to have the whole matter ventilated in court. The charge was made by C. E. W. Smith, who claims that, for the purposes of organization of the Labrador Pulp and Lumber Company, a syndicate of seven men, each holding one share of \$100, was formed, Smith being made vice-president. John McMartin, of LaRose fame, became interested to the extent of \$200,000, the money being put up by him for the purpose of taking up options. Smith states that, prior to this, Ford claimed to control huge areas of timber limits in Labrador, including the Sand Bay Ridge, Hamilton River and Gross Water claims. A syndicate was arranged with a capital of \$1,115,000, Smith having a share in the same. Smith claims that Ford later called a meeting of all the members, save plaintiff, and at this meeting he was dropped out. Apparently a document, bearing the name of Smith, and giving up his rights in the matter, was the justification for the action; but Smith claims that his signature is a forgery. The effect of the document would be to enable Ford to control upwards of 435 square miles of timber limits in the Labrador district. Plaintiff claims that he was instrumental in bringing into the deal some 500 square miles, aggregating options valued at \$225,000, and that he was prepared to put these into the syndicate from which he was ousted. C. E. W. Smith is a promoter, who has previously been mentioned here as interested in some large propositions, and Ford is a well known contractor.

Ford went to New York to secure evidence on his side of the argument.

Subsequently, in the early evidence in the case, it appeared that the document which contained the resignation of Smith as vice-president and by which he claims he was forced out of the syndicate, has been lost. At any rate, it cannot be found. Mr. J. F. Bush, secretary of the company, testified to having seen the document, but since January 13th it had not come under his observation. The case is going on.

It is reported here that a merger is in progress between various timber limits in Murray Bay district, on the Saguenay River, representing about \$1,000,000 in value. American interests are largely concerned, the principal company represented in the merger being the Baie St. Paul Lumber Company.

Lumbering Operations Around Three Rivers

Word from Three Rivers and other lumbering points in the Province of Quebec, indicates that cutting operations are now well under way and that a successful season is anticipated. It was feared that operations would be held up to a considerable extent by scarcity of lumbermen and that wages would be higher than usual. It is claimed, however, that a large number of men offered themselves at the last moment and that a sufficient supply have been secured at reasonable wages. Owing to the brighter prospects in connection with general business, as well as to the outlook for the paper trade, it is expected that the cut of lumber, pulp wood and logs of all kinds will be larger than usual.

New Brunswick Restriction

The interview given by Governor Tweedie, of New Brunswick, to the New York Herald, recently, has occasioned some comment here also. The feeling among the trade is that the interview is only one of the evidences of the growing importance of the pulp business and that Canada is awakening

to the importance of early action towards the prohibition of the export of pulp wood from Crown Lands. It is felt that even if the Dominion Government does not take drastic action, itself, upon the question of export, the different provinces will go as far as they may towards compelling the entire process of the manufacture of Canadian pulp wood into pulp and paper to be carried on within Canada.

The News Pulp and Paper Company, Limited, has been formed, with headquarters in Montreal, and a capital of \$1,000,000, to carry on the business indicated by its title. No definite information can be obtained with respect to the company, the lawyers incorporating it claiming that it is a private matter. It is believed in well informed trade circles, however, that the company has been formed for the purpose of taking over another company which is now in business.



ELECTRICITY IN PAPER.

The causes of electricity in paper, especially at the dry end of the machine, says "World's Paper Trade Review," are undoubtedly friction and heat from the drying cylinders. The rolls of the calenders are driven by running on top of one another, and the resulting friction is very great, hence the electricity. The heat is an important factor in the case is evident from the fact that should the paper become a little damp the sparking and snapping caused by the electricity disappears, but just as soon as the paper again becomes dry it appears, and the dryer the paper is run the more electricity is present. Benjamin Franklin declared that positive electricity was produced by rubbing a glass rod with silk and negative electricity was made on resinous bodies by friction with wool or fur. When running a nard sized paper over the dryers it comes in contact with the woolen dryer felt, and thus we have one of the causes of electricity in paper.

It is a well-known fact that the size of the bodies that come in contact with each other is not as big a factor in making electricity as are the speed and quality of the bodies; therefore when running a very fast speed it is only natural that more electricity is produced, or when the paper is extra hard sized the same may be found to show a greater amount of electricity than when running a wider sheet at a slower speed. Rolling contact and sliding friction produce the same effects; that is, the contact between the calender rolls rolling on one another will produce as much electricity by friction as if they were sliding on one another. Free a machine-room from air and dust and the electricity in the paper would almost disappear, moisture and dust being a check on it. In most mills no study as to the cause of electricity in the paper has been made, and the only means adopted to prevent it has been to string a copper wire across the paper as it leaves the calender rolls. While this may be sufficient to do away with the cracks that it would make at the machine helpers, it is not sufficient to relieve the paper entirely of it, and the matter should be gone into further, where it is desirable to have it eliminated from the paper.



NEWFOUNDLAND TIMBER AREAS

The Newfoundland Government has issued a statement regarding the pulp and power areas of the island. It says:—

"In the Gander watershed are some 1,700 square miles of timber country, including the land around the lake and the streams emptying into the lake. Of this, some 900 square miles are held by the Timber Estates Company and 800 by W. H. Taylor, of St. Johns. In pulp it is asserted that the locality is unsurpassed on the island. The rivers are excellent driving streams and on the main Gander River are three water powers. The first is equal to 2,000 horse-power, the second to 14,000 horse-power, and the third to

18,000 horse-power. Already many inquiries are being made regarding this district by American paper concerns. It is suggested that if the pulp wood areas that could be obtained from the fishermen's holdings were to be combined with those already available, some 2,200 square miles of solid pulp and paper timber lands, on which it would be impossible to find 10 per cent. of waste land, would be open for exploitation. These lands have all been inspected and it is ascertained that forest fires have practically never visited the district. The immediate presence of a good agricultural country assures the paper mills of the future the necessary supplies of vegetable food stuffs for workmen." The holdings of C. H. Thompson and others, of Philadelphia, whose pulp territory is located at Bay du Nord, are described as follows:—

"About Bay du Nord are timber lands to the extent of 600 square miles, which causes the section to be considered one of the best forest lands in the island, with the additional advantage that the region is open for shipping all the year through. The whole of the 600 miles of timber country has an outlet into Bay du Nord River, flowing into Bay du Nord Harbor. The water power here is good for 15,000 horse-power, and is so situated that the mills could be located almost at the water side and the largest ocean liners could load at the very doors of the mills where the pulp and paper will be made. The water power is at the mouth of the river, where one hundred yards from the mouth of a brook, twenty-five feet from the shore, the soundings show twenty fathoms of water. These lands are held by C. H. Thompson and others, of Philadelphia, who will start operations shortly, and, in fact, will place men in the lumber woods this season."



—W. J. Gage & Company, Toronto, have been awarded the contract by the Ontario Government for public and high school drawing books.

CLEANING WIRES.

Vitriol or sulphuric acid is one of the best chemicals for cleansing a wire, but it should be used with great care and the strength of it should be carefully regulated; it should be diluted with water and be strong enough to taste bitter when applied to the tongue. In applying it to the wire every effort should be made to spread it evenly, and the best method of doing this is to have a trough made to fit under one of the carrying rolls, so that when the solution is placed in this trough the roll will be partly immersed and will give the solution to the wire in uniform and constant quantities. It is better to scour the wire in this manner at least once a week than it is to wait until the wire becomes very dirty, and in order to thoroughly cleanse it it becomes necessary to have the solution extra strong, and also to allow the wire to run in it a longer time. Frequent applications of the weak solution will keep the wire perfectly clean. Soda ash is also used with good success in cleaning the wire and can be used with less danger of weakening the wire than when vitriol is used, but it does not clean it as thoroughly as does the vitriol. Kerosene is used when the spots or dirt are due to grease. A steam hose is a very handy as well as an efficient wire cleaner, and when properly arranged is quite as good as the vitriol or other chemicals; it does the work thoroughly and cannot injure the wire in the least.

* * *

SULPHITE FROM BIRCH

William E. Burton of St. John, New Brunswick, is engaged in the perfection of a scheme by which he hopes greatly to widen the ground of the pulp industry. He has been at work for some time, but until the present has not yet been able to make a complete success of his idea, which is that of making out of

birch wood a sulphite equal to that which is obtained from spruce.

So far Mr. Burton's product has been of fine quality, though rather short in fibre. He has just sent away a ton of his pulp to New York for sample and manufacture, and he thinks that his efforts have now been crowned with success. He uses a machine of his own invention.

The difficulty attached to the successful manufacture of birch wood into paper pulp lies in its color, which is a dark yellow not suited to the demands of commerce. If Mr. Burton has really succeeded in bleaching birch wood to the required extent he has done something which may prove of great importance. Birch wood grows up in the wake of a forest fire and large areas of the province of New Brunswick are covered with it.



—J. W. Gates is erecting at Port Arthur, Texas, a paper mill which will use as its raw material rice straw. The mill is to cost \$500,000. It will be remembered that this magazine a few months ago devoted considerable space to the merits of this scheme of utilizing rice straw.

* * *

In our November issue an item on page 298 stated that Mr. Thos. Gain had been appointed manager of the Don Valley Paper Company, Limited, Toronto. This was an error on our part, which Mr. Gain wishes us to correct. Mr. J. G. Worts is manager of the mill, and Mr. Gain sales manager. Mr. Gain reports the mill very busy on orders, and the outlook good.

FOR SALE.

Two Whyte oscillating paper machine screens. Capacity, three tons each per day. Good as new. Box 11, "Pulp and Paper Magazine."

PAPER FOR PERMANENT RECORDS.

F. P. Veitch, Chief of the Leather and Paper Laboratory of the United States Bureau of Chemistry, Washington, has prepared under the above title a monograph on the Durability of Paper from which we take the following:—

The greater part of the paper made at the present time is not durable. The causes that contribute to this fact are numerous and not all of them can be controlled. In the first place, the result of the various operations of paper making is a compromise. The operations which make clean, white paper make it weak and subject to slow changes which lead ultimately to its destruction. Those which make a strong paper do not give as clean a sheet and at the same time increase its transparency greatly. The processes which make the paper more opaque make it weaker, and those which give good clear printing or writing qualities hasten its destruction. Aside from these facts, the materials are often of inferior quality, and the operations employed, through haste and a desire to produce large quantities, are so severe that the quality and durability of the resulting paper are greatly reduced.

There need be no fear that this demand for better paper cannot be met. The American paper maker can, and frequently does, produce paper which is beyond criticism, and when the public insists on better paper and will receive no other, it will be produced. The purchaser must fully recognize, however, that, other things being equal, better papers will cost more per pound; that more durable paper may not be so white or uniform in color, nor so free from specks; and that lightness and thinness are secured at the expense of opacity. When the buyer attaches more importance to quality than to appearance, all paper will be better.

The quality of paper is controlled chiefly by the kind of materials used in making it and by the processes by which it is made. The durability of paper is influenced not only by the materials and methods of manufacture employed, but also by the way the paper is used and stored.

Just as there are different materials from which widely varying qualities of paper are made, so, too, the chemical and mechanical processes of paper making can be so operated as to yield from a given material papers of widely varying character as to strength, uniformity of texture, flexibility, color and durability. It often happens, therefore, that a stronger, more durable paper is made from inferior material than from high-grade material, because in the first instance the processes of making were so operated as to give the best results, while in the second instance these processes, or one of them, were improperly executed. Paper making is yet largely a rule-of-thumb industry, and the results of slight variation in procedure are not generally thoroughly appreciated.

The differences in the cooking of the material with chemicals lead to the production of pulp of varying character. If the pulp is not sufficiently cooked, the paper made therefrom will probably be strong when first made, but will not prove durable because of the impurities which were unaffected by cooking, and which it still contains. Or, again, this pulp may make a weak and short-lived paper, because in the effort to make it a well-appearing paper it has been over-bleached, thus causing profound changes in the constitution of the cellulose forming the paper; that is, the severe treatment necessary with the bleaching agent to remove impurities will result in the formation, through the action of the bleaching materials on the fibres, of other compounds not subsequently removed from the paper, the presence of which hastens its decay. When the material is cooked too much the fibre

itself is strongly affected thereby and greatly weakened. Furthermore, as impurities have been almost completely removed from the pulp, the bleaching agent next employed is free to exert its full effect on the already weakened fibre. This it does with great rapidity, and the fibre is thereby still further weakened and changed in constitution and rendered more susceptible to other destructive agencies. As a rule, the harmful effects of errors in cooking the pulp are less than those of bleaching because the compounds formed during cooking by the chemicals and impurities of the material are soluble and are removed from the pulp by washing, and because the constitution of the fibres is not as much affected by the chemicals used in cooking as by those used in bleaching. The process of bleaching is chiefly one of oxidation, and the more the fibre of the paper is oxidized the more easily it is changed and destroyed by wear and tear. The action of chemicals on paper is not limited to the time required to make it, but continues, much less actively, it is true, as long as the paper lasts. To prevent this, the chemicals used should be thoroughly washed out of the pulp before it is made into paper, as even very small quantities of acids which are added with rosin size, or of bleaching materials, or soluble salts slowly act on paper and gradually make it weak and brittle.

In order that paper may be written or printed on without the ink spreading over the sheet it is necessary to size it. This is done by adding starch, rosin, or glue. These substances do not, as a rule, immediately weaken or injure the paper, but as they are themselves subject to chemical changes or decay in the paper, and as some of them may add free acids which attack fibres, the durability of the finished product is lessened by the use of sizing materials, and it is therefore necessary that only sufficient quantities to insure well-sized papers should be used.

Durability is also influenced by the mechanical operations of beating, forming the pulp into the sheet of paper, and subsequently drying it. It is possible for the paper maker to mash out the fibres, leaving them long with frayed ends, or to cut them into short pieces with blunt ends. He can make harsh, firm fibres or he can make them soft and slimy, and either of these may be long or short. Manifestly, fibres having such widely different physical forms will make paper of different character, strength, and durability, and it is clear that the long, slimy fibres with the frayed ends will interlock more firmly to make a stronger, more durable-to-handling paper than the short, harsh fibres. After the paper is made it must be dried before it is ready for use. It is customary to do this by passing it over steam-heated steel drums. Experience shows that the fewer and hotter the drums—that is, the more rapidly it is dried—the less durable the paper.

Although the experienced paper maker can make a shrewd guess as to the kind of fibre used simply by the appearance and feel of the finished product and can make a paper closely approximating a sample in appearance from the examination, it is only by means of special tests devised for the purpose that accurate information as to the composition, strength, flexibility, and probable durability can be obtained. Microscopical, chemical and physical methods are employed in obtaining this information. The kinds of fibre in the paper are learned by examining it under the microscope. In this way not only can the kind of fibre from which the paper was made be determined, but when several kinds of materials have been used, as is frequently the case, the approximate quantity of each present can be learned. It is, therefore, a simple matter to learn whether a paper has been made of the strongest and most durable materials, such as cotton and linen, of medium-grade materials, like straw and chemi-

ally prepared wood, or from non-durable ground wood.

Experience has demonstrated that materials having long, strong and flexible fibres make the most durable and strongest paper. Further, the more carefully the materials are carried through the several processes of paper making the stronger the paper is. Strength is therefore generally regarded as a simple and direct means of learning at once not only the general kind of raw materials employed, but also something of the way these materials have been treated in forming them into paper. The strength of paper is, therefore, within limits, an indication of its quality.

As a strong paper may be very brittle, strength alone is not to be accepted as the final measure of durability in service, but it is necessary to learn as well how flexible the paper is. To supply this information, a machine known as the folder has been devised which closely imitates the folding of paper in documents and books when they are used. In order that these tests may be completed quickly, a strip of the paper of definite width is folded backward and forward upon itself under a constant strain until it breaks. By folding a piece of paper with the fingers one can see how closely this operation imitates the actual folding of documents and the turning of leaves of books. The results thus obtained probably furnish more information as to the quality and durability of paper than any other single test. It not only shows how flexible the fibres of the paper are, but it also shows how firmly they cohere and how well felted together they are. In a general way it indicates at once the character of the raw material and the care with which it has been made into paper. It is both a test of flexibility and of strength in service. In a way it replaces tests for strength, because papers which fold well are strong papers, though strong papers do not necessarily fold well.

Documents should have but few folds and books should be so bound that there is no cutting action of the binding on the paper. Valuable paper should be kept in a well-lighted, clean, dry place. It should not be exposed to direct sunlight, however, nor to an atmosphere containing acid fumes, which the atmosphere of rooms lighted by gas frequently contain. Both direct sunlight and acid fumes have an oxidizing action on the paper. Dampness, aside from the direct weakening effect, is particularly favorable to the activity of bacteria and insects, many of which obtain their food from the starch, glue, casein, and sugars which the paper may contain. The injury due to bacteria and insects can be rendered almost negligible by keeping the paper dry and excluding those materials—starch, sugars, glue, and casein—on which the bacteria and insects live. However, as it is not practicable to keep the paper absolutely dry or free from small quantities of the above-mentioned substances, we must compromise in securing the most favorable conditions practicable.



—Final discussion has just been given by the Court of Appeals in the suit of the Casein Company of America against A. M. Collins Company, of America, for infringement of its patents. A previous decision invalidated both patents of the Casein Company on which the suit was based, namely, the use of formaldehyde in conjunction with casein, and of the use of casein in which there was a small percentage of free mineral acid, on the ground that the patents were old and had been in prior use. In the Court of Appeals this decision was confirmed and goes further by covering all defences of defendant, making it unusually broad in its scope. The effect of this settlement of the case will be far-reaching, as it practically gives all consumers the free use of the product in its several forms without fear of infringement.

CANADA'S ATTITUDE TOWARDS UNITED STATES.

The Toronto "News" of recent date contained the following article on the respective attitudes of people in Canada and the United States towards the recently enacted tariff of the latter country:—

Citizens of the United States appear to be more concerned over the Canadian-American tariff situation than the people of this country. There are indications of considerable perturbation in official quarters at Washington, due to the representations of the large paper industries, and to virtual secessions from the Republican ranks. In the course of his recent extensive tour, President Taft found whole sections of his party in the West in arms against the Payne tariff. The feeling is that the Administration failed to keep its pre-election promise to revise the duties downward. Particularly is there a disposition in many States to avoid such a tariff war with Canada as may be provoked by the maximum and minimum clauses of the measure adopted by Congress.

Washington evidently entertains the view that the clauses referred to oblige the President on March 31st, 1910, to raise the general tariff against all Canadian products to the extent of twenty-five per cent. on the ground that Canada discriminates against American goods. The Capitol authorities found this contention upon three facts. The first is that the Dominion extends a preference of thirty-three and one-third per cent. to imports from Great Britain. The second is that, in order to conserve its natural resources, and encourage domestic industries, the Province of Ontario compels the manufacture in this country of pulp wood cut on Crown lands, thus practically prohibiting the export of this commodity. The third is that the Province of Quebec places an extra stumpage of twenty-five cents a cord on pulp wood cut on Crown lands for export, and that the Provincial authorities

propose to imitate Ontario's example by prohibiting the export of this raw material.

Already, since the passage of the Payne Bill, Washington has jacked up the duty on Quebec paper to \$6.10 per ton. This includes a straight duty of \$3.75, plus a retaliatory duty of \$2 a ton, plus the amount of the extra stumpage on export pulp wood. A Quebec expert calculates that the enforcement of the maximum United States tariff after April 1st, 1910, will add \$9.50 to the duty on Quebec made paper, raising it in fact to \$15.60. The application of such a rate would be prohibitive in its effect. The obvious counter-move would be for Canadians to extend Ontario's absolute embargo on the export of Crown lands pulp wood to pulp wood cut anywhere in this country, whether on public or private limits. Many American mills largely depend on the Dominion for their raw materials, and, if cut off from their source of supply, they would suffer accordingly.

The curtailment of their output conceivably might advance the price of paper to such a level that Canadian mills would be able to sell their product in the Republic, despite the maximum duty. It is stated that the maximum duty on Canadian mechanical or ground pulp will not be more than \$6.50 a ton, as against \$2 at present, and that the Canadian mills could overcome this, and export the half manufactured article to the United States. At certain seasons every year, especially in periods of an insufficiency of water to operate their mills, many American paper makers are absolutely dependent upon Canadian ground pulp. The largest paper manufacturers of the United States own thousands of miles of limits in this country, from which they draw the supplies for their sulphite mills. They are cutting from these to save their American limits, and, if the right to take the pulp wood across the line were ter-

minated, they might, in time, be forced to establish branch factories on this side of the international boundary.

We possess the raw materials necessary to a great American industry. These raw materials are also essential to the development of a similar industry in the Dominion. Washington should not take umbrage when Canadians take a leaf from American history, and exhibit a disposition to look after their own interests. Canada's tariff on American goods is much lower than the United States tariff on Canadian goods. We buy twice as much from the Republic as the Republic does from us. The aggression is all on Washington's side, and, while we do not welcome tariff reprisals, we shall not readily be bluffed by the threats contained in the Payne Act.

On the above, Mr. John R. Barber, of Georgetown, who considers that it is the best and most independent article which has appeared on the subject in the Canadian daily press, comments as follows:—

The writer of the article in the "News" assumes that on the 25 per cent. additional tariff going into effect it would increase the duty on Canadian ground wood by \$4.50 per ton. This I consider rather over the mark, as the average value of ground wood for this year to date would not be over \$16 per ton at the mill, making the extra duty only \$4 per ton. Now, as the Canadian pulp maker doesn't **have** to sell his pulp in the United States, but the United States paper makers **must** come to Canada to buy, the only conclusion which you can arrive at is that the seller will not pay all of the extra duty. I don't think it very wide of the mark to assume that two-thirds of all the pulp made in Canada can be put on the London and Manchester markets for \$2 per ton more freight money, than the average cost of delivery to United States mills. This leaves \$2 of the duty unaccounted for and which would have

to be paid by the Canadian pulp seller until the demand for wood in the United States put the price of ground wood \$4 higher than it is to-day. When this occurs the United States paper maker, or rather his printer customer, will pay all of the duty, while the Canadian pulp seller will enjoy the same business and profit as at present. The "News" article very properly states the opinion of the voting population of Canada, who have no direct interest in pulp mills or timber limits. We want to do business with the United States, but on a business basis, and are prepared to stand serious inconvenience and financial loss if need be, rather than allow any nation to bully us, or dictate what our financial policy shall be. If you want to buy wood and other raw material and sell us manufactured goods, we are willing and anxious to trade on a basis **mutually** beneficial. This will not be possible after March 31st next, for the President must put the extra 25 per cent. duty clause into effect—or destroy himself politically—and following this our 25 per cent. extra duty clause goes into effect automatically. For the result, I predict that from fifty to seventy-five millions of dollars worth of the manufactured goods of all kinds, now coming here from the United States, will come from England and France, for our duties from those countries will then be only one-half the duties levied on goods coming from the United States. This trade will give us more ships to carry out our pulp and paper to England and France, something which will be popular with both the English and French speaking people of the Dominion.



The Chicoutimi Pulp Company proposes to construct an electric railway from its mills to the timber limits in the River Du Moulin district, Que. The line will be for lumbering purposes only. Later it may be continued to River a Mars district connecting Alphonse with Chicoutimi, and give connection with the Quebec and Lake St. John Railway.

NON-RUSTING NEEDLE PAPERS..

According to a short note in the "Papierfabrikant," needle papers are required to show a high resistance to folding and crumpling and must therefore be prepared from strong materials. In addition, they must be perfectly free from traces of acids and alkalis as well as from chlorides. Since these papers are nearly always black they are generally prepared from unbleached pulps, and consequently are not likely to contain chlorides; such pulps also give tougher papers than bleached pulps. In order to be sure of freedom from traces of chemicals the paper maker should, whenever possible, prepare the pulps himself, and pay great attention to their purity. Many brands of chemical wood pulp are distinctly unsuitable. The writer always makes a point of specifying to the pulp mill that the pulp must be particularly free from chemicals, and with few exceptions he has always obtained a suitable pulp. In the case of rags the main point to be attended to is frequent and thorough washing in the boiler with hot water, also washing in the draining chest by discharging at intervals several engines full of clean water on to the rags. If necessary, any residues of alkali may be neutralized by the cautious addition of acid to the engine. The half-stuff must be copiously washed in the breaker; in fact, large volumes of water at all stages of washing must be used to ensure a suitably pure material. The writer has known common needle papers, containing a large percentage of mechanical wood, to be rejected on account of their acidity; this was due to the formic acid present in the steamed, brown mechanical pulp employed, and this acid appears to be never completely removed in the ordinary course of the preparation of such stuff.



OVER-PRODUCTION IN SWEDEN.

It is possible to increase the number of cellulose mills ad libitum, because

they do not require water power and may be established on any convenient site where a sufficient supply of logs may be calculated upon. Unfortunately, speculators ran away with the idea some years ago that a cellulose mill was like a gold mine, and here we are in for a prolonged period of overproduction.

Mechanical pulp mills cannot be started except where cheap power (i.e., water power) is to be found in a district which can supply the raw material, and it is not, therefore, possible to arrive at such an overproduction in the mechanical as in the chemical branch of the pulp trade. The existing Scandinavian mills have, however, been constantly enlarged, and there are too many projects for new mills under consideration. It would be fortunate for themselves as well as for the trade if the promoters were to consider twice before going to work, for we should say that the increase of production of 1910 against 1909, which is already an established fact, will be quite as much as the market can absorb.

During the last week or a fortnight we must call the price of mechanical about 50 ore per ton lower, but at the same time the Lancashire buyers, who have for such a long time stood aloof, have come up to sellers' ideas of price, or nearly so, which actually makes the position better than it was a little while ago.—Farmand.

WANTED

Correspondence with parties interested in starting a mill for "natural" brown steamed wood-pulp and paper. The advertiser is a specialist in this line from Scandinavia. Highest testimonials. Address C. E. B., c/o Pulp & Paper Magazine of Canada.

WANTED

Position as superintendent or builder of Sulphite Pulp or Wood Pulp Paper Mill. Wide Experience abroad. (U.S. Scandinavia. Russia, etc.) as well as in this country. Highest testimonials for economical construction. Consumption of sulphur in last mill built 8%. (Against 12-18%.) Brown Mech. Pulp and Paper (= imitat "Kraft") a specialty. Correspondence solicited. Address R.S.T. c/o this paper.

DIFFERENCE BETWEEN A JORDAN AND A REFINER.

The most important difference between a Jordan and refining engine takes place in the construction of the machines themselves. The Jordan engine is merely a plug and shell upon which are arranged a series of knives. When in operation these knives are in contact with each other, and the amount of such contact may be regulated by an adjusting screw, which is attached to the plug of the Jordan. The refining engine is similar to the Jordan, as far as plug and shell are concerned, but on the end of the machine there are what are known as stationary and revolving disks, which refine the stock after it has passed between the plug and shell of the machine. This refiner makes it possible to have the stock smoother than that which is obtained from the ordinary Jordan, and it is possible also to have it free from all knots and chips after passing through the refiner. The Jordan is used more for cutting the stock to the desired length, after which it goes to the machine. When using the refining engine the stock is cut to the desired length, and then by manipulating the refining part of the machine it is possible to smooth and draw out the cut fibres in a way which will make a very smooth, well closed paper on the machine, and by this method it is possible to increase the strength as well as the finish of the paper. Stock can be beaten quicker in the beating engines when a refining engine is in use than it can where the ordinary Jordan is used. The one drawback about the refining engine is that it will consume more power than a Jordan, but then, again, this is overcome when we take into consideration the fact that the stock may be beaten in less time and with less power in the beaters. Of course, on account of the greater number of knives it contains the refining engine has a much greater cutting surface than has the Jordan engine. Its enclosure allows

greater dilution of stock when working on it. Stock can be made to work much slower when run through a refining engine than that produced by a Jordan. A refining engine will cover up and rectify careless beating and produce fibres of uniform length.



RAILWAY RATES ON PULP SHIPMENTS.

James Davy, of Thorold, Ont., has made application to the Board of Railway Commissioners for Canada for an order directing the Niagara, St. Catharines, and Toronto Railroad to refund him \$219.83, excess freight charges collected from him on shipments of wood pulp from Thorold to Niagara Falls, N.Y.; also for an order restoring a rate of 2c. per 100 lbs. on pulp between those points.

Mr. Davy claims that for about 23 years the rate on pulp from Thorold, Ont., to Niagara Falls, N.Y., was 2c. per 100 lbs. About November, 1908, the Niagara, St. Catharines and Toronto Railway raised this to 3c. He at once protested against the advance though the protest has been without effect. Since that time he has shipped to Niagara Falls 42 cars of pulp, upon which he has paid \$659.50, or \$219.83 too much, compared with the old rate. The railroad was subsidized by the taxpayers of Thorold, (among whom was Mr. Davy), and he contends that if it could carry pulp at 2c. per 100 lbs. for 20 years with only half the business they are doing now, they should be required to continue to do so, and not make an advance of 50 per cent. in their rates. Further, the rate of 2c. should be restored for the reason that the G.T.R. did not change its rate. Mr. Davy states he has tried to use the G.T.R. for outward shipments, but has been unable to do so on account of excessive switching charges. The railroad had been advised by American roads that it had been decided to publish through rates on pulp, east, based on 6th class rates from Niagara Falls, N.Y.; in

other words, the through rate would be rate from Thorold to Niagara Falls plus the regular 6th class rate from there to destination. Up to November, 1908, the rate to New York and Philadelphia points on pulp was 13c. per 100 lbs., or Buffalo and Niagara Falls, N.Y., rates from Thorold. Since then it has been 15c. with a prospect that it will be 16c. if the Niagara, St. Catharines, and Toronto Railway succeeds in getting approval for a 3c. rate to Niagara Falls.

Mr. Davy further states his belief based on certain indications, that an effort is being made to force the output of the pulp mills at Thorold west to points in Michigan and Indiana, instead of east, where he has customers in New York and Philadelphia.

The Niagara, St. Catharines and Toronto Railway in reply to Mr. Davy's application contend that the rate now in force is not unreasonable or excessive in view of the distance, the detention caused to rolling stock, the services rendered, and the incidental expenses in connection with terminals, bridges, etc., and is as a matter of fact $1\frac{1}{2}$ c. below regular 6th class rate. The company also submits that being a commodity rate it should not be disallowed by the Board unless positive proof is shown that it is unreasonable and excessive. It further claims that the old rate was unduly low and that shippers were able by consigning the goods to themselves from Thorold to Niagara Falls, and reconsigning them to points on the American side to obtain a rate by adding together the two local rates, actually less than the through rate in each case from Thorold to the said American points. Its argument from this is that as the through rate cannot be shown to be excessive, it is reasonable to suppose that the local rates should be sufficiently high when added together to be greater than the through rate.

Mr. Davy denies these allegations and brings illustrations to prove his point, and claims on the other hand that there are no through rates to points

mentioned, nor were there any such, and in their absence he was forced to bill locally to Niagara Falls, N.Y., and re-consign from there. Furthermore, Niagara Falls, N.Y., is his distributing point, and he seldom knows to what point his pulp is to be shipped until it arrives at that station ready to re-bill to whatever place is most advantageous.

It must be remembered that all the shipments of pulp are composed of 54 per cent. of water.

So far the Railway Commissioners have not allowed Mr. Davy's claim for a refund, intimating that they had no legal right to order such. The railway officials admit he is morally entitled to it, but legally they cannot pay it, a somewhat strange position for them to occupy. Mr. Davy is continuing the fight, and it is hoped the Board will see the justice of his claim.



—The question of reforestation is a very live one at present in the Counties of Northumberland and Durham, Ontario. A small lot of second-growth pine in Northumberland County has been sold for \$2,000 standing. Another farmer has sold \$500 worth, and has trees standing which will bring an equal amount. This second-growth timber was produced upon land that is not specially adapted to grain-growing. A resident in the vicinity of Brighton has a fine lot of second-growth timber upon ground which eleven years ago was sown to oats. There are trees thirty feet in height and from three to four inches in diameter. One oak has a diameter of seven inches. Another farm has a fine wood lot of mixed trees upon ground which had a crop of wheat not long ago. Practical results such as these are the things which appeal most strongly to farmers and land-owners, and if all the waste lands were reclaimed it would mean an immense increase in revenue to the farmers of the Province.



A company has been organized in Montreal under the name of the News Pulp and Paper Company.

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RAG AND PAPER STOCK MARKETS

There is practically no change in the markets for rag and paper stock. About the only alteration in conditions is that an improved demand is noticeable for old bagging. This is largely used for strong papers, such as heavy wrapping paper, or heavy paper bagging. The activity in these lines is suggestive of industrial improvement, either actual or anticipated. The demand for other lines is all that could be asked for and dealers look for increased activity towards the spring.

Meantime, prices continue steady, as follows:—

Shirt Cuttings—	Per 100 lbs.
White	\$4 50 to \$5 50
Unbleached Cottons ..	4 25 to 4 75
Light Print Cuttings..	3 00 to 3 50

Shoe Rag Cuttings—

Bleached	4 00 to 4 50
Mixed white	3 00 to 3 50
Light print	2 75 to 3 00

Overall Cuttings—

Blue	3 25 to 3 50
Brown	2 00 to 2 50

Paper Shavings—

Hard white	2 00 to 2 25
Soft No. 1 white	1 50 to 1 75
Soft No. 2 white	1 25 to 1 30
Mixed shavings	0 55 to 0 60
Ledger stock	1 00 to 1 25
Printed book	0 90 to 1 00
Common waste	0 35 to 0 45

Roofing Stock—

No. 1 satinettes	0 75 to 0 80
No. 2 satinettes	0 45 to 0 50

Sundries—

Old bagging	0 60 to 0 65
Manilla rope	2 00 to 2 25
Mixed cotton rags	1 00 to 1 25

PULP MILL MACHINERY FOR SALE.

The water power having been changed to electrical development, the undersigned offers for sale at a bargain, the entire equipment of the Boyce Pulp Mill at Marseilles, Illinois, consisting of 8 Olin Scott No. 16 New England Grinders, 3 Empire Stones, 4 Hydraulic Pressure Tanks, 2 Centrifugal Pulp Screens, 1 Machine Frame, 4 Wood Barking Machines, 1 Barker with Attachment, 3 Saws, 4 ft. 8 in.; 4 ft. 3 in.; 4 ft. 6 in.; 4 Centrifugal Pumps, 4 Power Pumps, 4 Flat Pulp Screens, 3 Wet Machines, 4 Shaft Hangers, 1 Stone Sharpener, 1 Clutch, 20 x 3 3-16 in. bore; 45 Pulleys, various sizes and bores; 15 Pieces Shafting, 1 15-16 to 3 7-16 diameter, about 182 feet; 2,300 feet of Pipe from 1 to 8 inch diameter, 38 Bearings for different sizes shaft, 1 Bull Slide, 1 Wood Carrier with Saw (Automatic), 1 Bevel Mortise Gear with Pinion, Couplings on end of Shafts, 2 Deckers and 1 Wood Splitter.

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 - 1 KNUCKLE JOINTED BALING PRESS, daylight 5'-8", lift 2'-1", platen 24" x 36".
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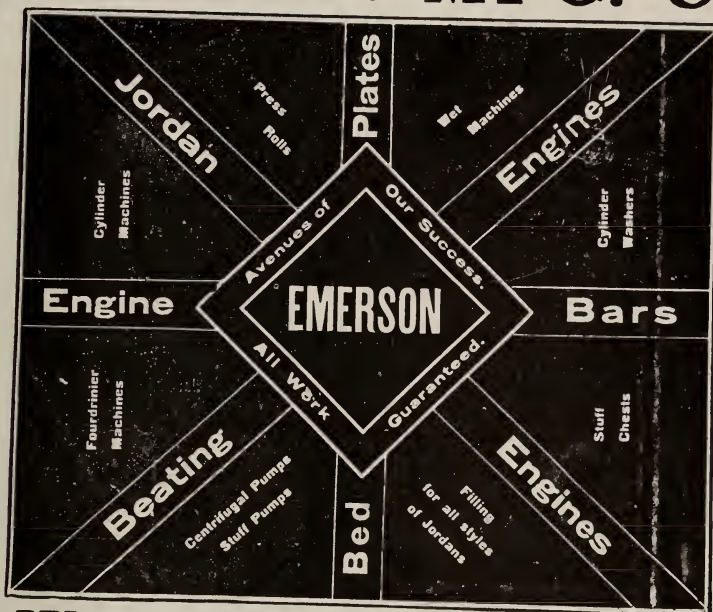
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PULP AND PAPER MARKETS.

Toronto, December 11th, 1909.

No complaint can be heard among the paper manufacturers and dealers regarding any deficiency in business. On the other hand they all claim to be fully employed and the prospects for continued good business were never better. Prices remain practically unchanged, although they have stiffened up somewhat. The demand for news is very good. Wrappings are scarcely so firm, which is attributed to the popularity of Kraft papers and imitations of the same. Payments are reported by most dealers to be very satisfactory.

The demand for ground wood has been good, a fact attributed largely to the insufficiency of supplies in the United States on account of the continued low water in the chief streams of paper making districts. In Ottawa water conditions have been good though some trouble has been caused by the stalling of logs on the Ottawa River due to the low water a year ago. Mechanical is now quoted at \$20 to \$21 at the mill, and prospects favor a further increase in price, as the American mills seem scarcely likely to be able to grind any large quantities before the spring rains, and Canadian stocks of pulp are already pretty low. Sulphite fetches about \$40 at the mills, and prices are stiffening somewhat as the large Swedish supplies seem to show signs of exhaustion.

* * *

Montreal, December 11, 1909.

The Pulp and Paper Magazine hears nothing but encouraging reports of the situation throughout the trade. All the mills, apparently, are operating full time and there is little or no accumulation of stock. Some interests are not quite so optimistic as others and report that pulp has begun to accumulate slightly, now that the water is rising in the rivers of the New England States, and the mills there are able to manu-

facture more of their own pulp wood. Illustrating the different views, a spread of several dollars exists between the prices quoted on pulp by different mills. Possibly freights to different points may have something to do with the difference in prices. No. 1 news is apparently holding around 2c at the mills, or $2\frac{1}{4}$ to $2\frac{1}{2}$ at Montreal and Toronto. The various interests are united upon one point, however, that being that the market is gradually strengthening for both pulp and paper and no one seems to be very anxious to make sales at the moment. Certain it is that pulp is accumulating somewhat at a few mills and the owners, in view of the outlook, are not unwilling that it should accumulate. Many of the large mills are practically sold up and one of the largest paper mills declares that it cannot guarantee deliveries under four to six weeks.



BRITISH MARKETS.

Makers of mechanical wood pulps seem disposed to meet consumers' ideas with regard to price, there being plenty of pulp offering. The better class chemical pulps command a fair price, but only a moderate sale, whereas the lower grades are most difficult to sell, and consequently low prices continue to rule.

The market for chemicals continues fairly steady. A reduction of 10s. per ton is reported in ammonia alkali for delivery over next year in the home market. Caustic soda, 76 per cent. is quoted £11; bleaching powder (soft wood), £4 2s. 6d. to £4 7s. 6d. per ton at works; salt cake, £2; soda crystals, £2 17s. 6d.; recovered sulphur, £5 per ton.—“World's Paper Trade Review.”

There is a fairly good demand for domestic rags at unaltered but firm prices. There is more enquiry for foreign rags.



Negotiations between the Ogdensburg Soda Pulp Company and the town of Prescott are said to be off, the town having declined to offer a bonus.

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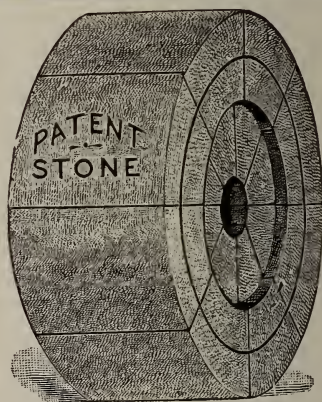
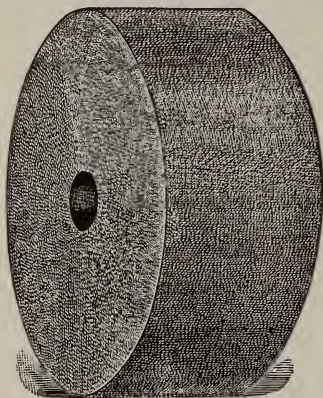
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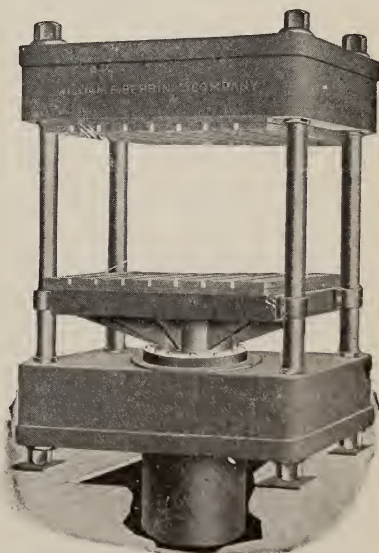
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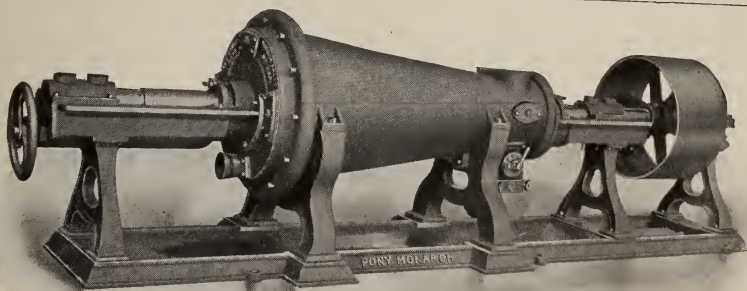
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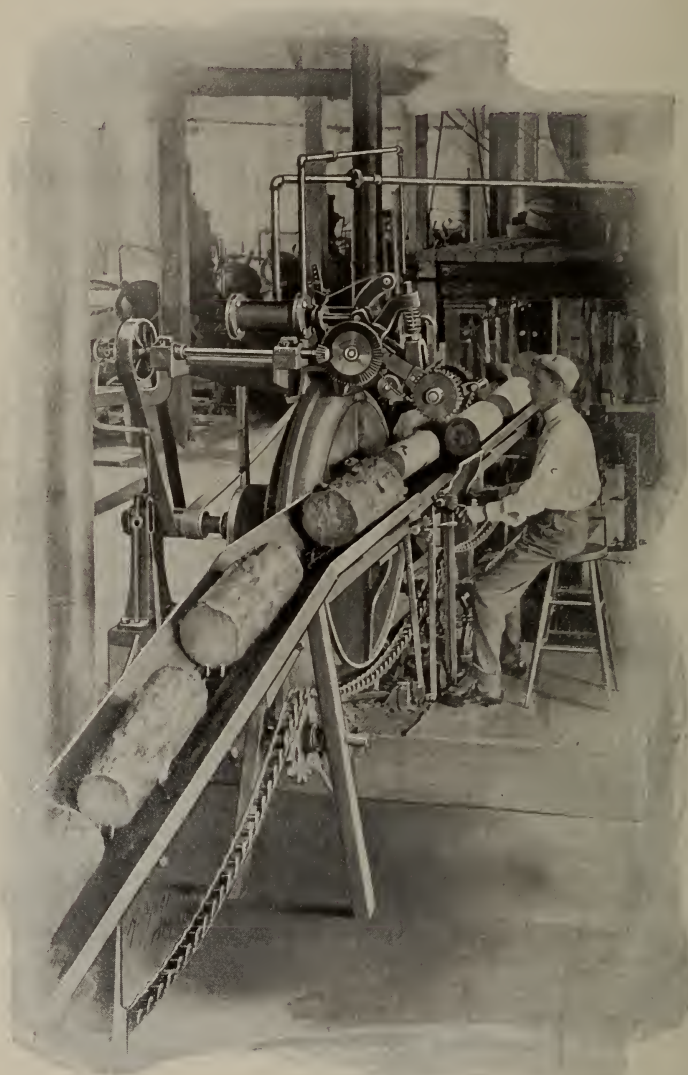
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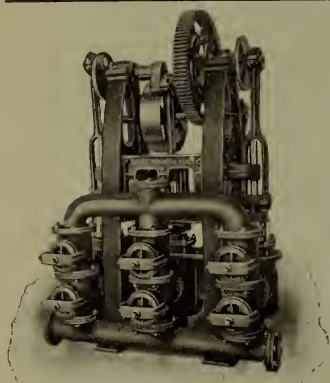
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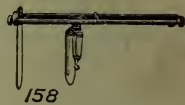
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